Atlantic States Marine Fisheries Commission

Tautog Management Board

August 3, 2017
2:00 - 4:30 p.m.
Alexandria, Virginia

Draft Agenda

The times listed are approximate; the order in which these items will be taken is subject to change; other items may be added as necessary.

1. Welcome/Call to Order (*A. Nowalsky)* 2:00 p.m.

2. Board Consent 2:00 p.m.
   - Approval of Agenda
   - Approval of Proceedings from May 2017

3. Public Comment 2:05 p.m.

4. Consider Amendment 1 for Final Approval **Final Action** 2:15 p.m.
   - Review Public Comment and Management Options (*T. Kerns*)
   - Review Advisory Panel Report
   - Review Law Enforcement Report (*J. Snellbaker*)
   - Consider Final Approval of Amendment 1

5. Elect Vice-Chair **Action** 4:25 p.m.

6. Other Business/Adjourn 4:30 p.m.

The meeting will be held at the Westin Alexandria; 400 Courthouse Square; Alexandria, VA; 703.253.8600

MEETING OVERVIEW

Tautog Management Board Meeting
August 3, 2017
2:00 p.m. – 4:30 p.m.
Alexandria, Virginia

Chair: Adam Nowalsky (NJ) *Assumed Chairmanship: 05/15*	Technical Committee Chair: Jason McNamee (RI)	Law Enforcement Committee Representative: Jason Snellbaker
Vice Chair: VACANT	Advisory Panel Chair: VACANT	Previous Board Meeting: May 9, 2017
Voting Members: MA, RI, CT, NY, NJ, DE, MD, VA, NMFS, USFWS (10 votes)		

2. Board Consent

- Approval of Agenda
- Approval of Proceedings from May 2017

3. Public Comment – At the beginning of the meeting public comment will be taken on items not on the Agenda. Individuals that wish to speak at this time must sign in at the beginning of the meeting. For agenda items that have already gone out for public hearing and/or have had a public comment period that has closed, the Board Chair may determine that additional public comment will not provide additional information. In this circumstance the Chair will not allow additional public comment on an issue. For agenda items that the public has not had a chance to provide input, the Board Chair may allow limited opportunity for comment. The Board Chair has the discretion to limit the number of speakers and/or the length of each comment.

4. Consider Amendment 1 for Final Approval (2:15-4:24 p.m.) Final Action

Background

- The Board approved Draft Amendment 1 for public comment in May 2017. (**Briefing Materials**)
- Draft Amendment I includes multiple management options to update the 1996 FMP and proposes a four-region management scenario. Additionally a commercial harvest tagging program was proposed in the document to combat illegal harvest and trade.
- Public Hearings were held in June 2017 (**Briefing Materials**) and public comments were gathered through July 14, 2017. (**Supplemental Materials**)

Presentations

- Review Public Comment and Management Options by T. Kerns
- Advisory Panel Report
- Law Enforcement by J. Snellbaker

Board Actions for Consideration

- Select management options

- Approve final document

5. Elect a Vice-Chair Action

6. Other Business/Adjourn

DRAFT PROCEEDINGS OF THE

ATLANTIC STATES MARINE FISHERIES COMMISSION

TAUTOG MANAGEMENT BOARD

The Westin Alexandria
Alexandria, Virginia
May 9, 2017

These minutes are draft and subject to approval by the Tautog Management Board
The Board will review the minutes during its next meeting

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ATTENDANCE

Board Members

Dan McKiernan, MA, proxy for D. Pierce (AA)
Raymond Kane, MA (GA)
Rep. Sarah Peake, MA (LA)
David Borden, RI (GA)
Mark Gibson, RI, proxy for J. Coit (AA)
Eric Reid, RI, proxy for Sen. Sosnowski (LA)
Sen. Craig Miner, CT (LA)
Mark Alexander, CT (AA)
Jim Gilmore, NY (AA)
Emerson Hasbrouck, NY (GA)
Russ Allen, NJ, proxy for L. Herrighty (AA)
Tom Fote, NJ (GA)
Adam Nowalsky, NJ, proxy for Asm. Andrzejczak (LA)
Roy Miller, DE (GA)
John Clark, DE, proxy for D. Saveikis (AA)
Craig Pugh, DE, proxy for Rep. Carson (LA)
Rachel Dean, MD (GA)
David Blazer, MD (AA)
Michael Luisi, MD, Administrative proxy
Joe Cimino, VA, proxy for J. Bull (AA)
Cathy Davenport, VA (GA)
Kyle Schick, VA, proxy for Sen. Stuart (LA)
Peter Burns, NMFS
Mike Millard, USFWS

(AA = Administrative Appointee; GA = Governor Appointee; LA = Legislative Appointee)

Ex-Officio Members

Jason McNamee, Technical Committee Chair
Jason Snellbaker, Law Enforcement Representative

Staff

Bob Beal
Toni Kerns
Mike Schmidtke
Jeff Kipp
Katie Drew
Ashton Harp

Guests

Bob Ballou, RI DEM
Colleen Giannini, CT DEEP
Nicole Lengyel, RI DEM
Jack Travelstead, CCA
Arnold Leo, E. Hampton, NY

The Tautog Management Board of the Atlantic States Marine Fisheries Commission convened in the Edison Ballroom of the Westin Hotel, Alexandria, Virginia, May, 9, 2017, and was called to order at 11:15 o'clock a.m. by Chairman Adam Nowalsky.

CALL TO ORDER

CHAIRMAN ADAM NOWALSKY: All right, good morning everybody we are going to convene the Tautog Management Board. I ask everyone who is here today to take your seats. Any other sidebar conversations, I appreciate if you can keep them to a dull roar. I am Adam Nowalsky; this is the Tautog Management Board.

APPROVAL OF AGENDA

CHAIRMAN NOWALSKY: The agenda has been provided. We'll start out with the agenda itself. We are going to make a couple of changes to the agenda as it was presented. Essentially what we're going to do with Agenda Item 4, Review the Consistent Management Measures, is we're going to insert that to after the bullet point of Review Management Options in Item 5.

The intention there is allow us to get started with discussion on the document, look at Section 2, which is some of the overarching items; such as goals and objectives. Then we can move into the meat, which is those management measures that will have a separate presentation for. With that modification, is there acceptance of the agenda as modified? Seeing no objections it will be modified and approved as such.

APPROVAL OF PROCEEDINGS

CHAIRMAN NOWALSKY: Second item of business would be the approval of the proceedings from the January, 2017 Board meeting, I believe. We met in January. We started the last Board meeting in January. Any objections to approving those proceedings as presented? Seeing none; they stand approved.

PUBLIC COMMENT

CHAIRMAN NOWALSKY: Next item of business is Public Comment for any items that are not on the agenda here today.

I don't believe we had any sign- ups for that. Is there anyone in the audience that wants to speak on anything not on the agenda? Okay seeing none; we'll move ahead. Before we get into the presentation from staff on the draft amendment, Just let me take a couple moments to kind of set the framework for what we're going to try to do today.

First I'll go through, we've got a 144 page document that most of us just got our first look at last week. I understand that's a heavy lift. I want to extend my thanks to staff, Ashton and everyone else, for putting the document together. Everyone involved has certainly been working very hard to get that document presented to us for our review here today.

In terms of paths forward, Ashton is going to present the timeline, the initial presentation of that would contemplate us releasing the document for public hearings today; and then taking final action on that at the August meeting. As we go through the document, if there are substantive changes that people want to make, or if there are other options that they want to have reviewed by the TC, we would need to develop those specific tasks today, get them on record, and have any preliminary discussion. We could potentially have the TC review those, bring a revised draft back to us in August for then final approval at the annual meeting; which should still provide for implementation for most states for the 2018 fishing year. I just wanted to lay those couple of paths out there, and we'll get through as much as we can. With that I will turn the presentation over to Ashton to begin the discussion of the document.

CONSIDER DRAFT AMENDMENT 1 FOR PUBLIC COMMENT

MS. ASHTON HARP: I would like to give a big thank you to the Tautog Technical Committee, Stock Assessment Subcommittee, and the PDT. This is a very meaty document, and going into four different regions, it's almost like creating an amendment for each region. We put a lot of thought into this, and look forward to your feedback today.

Let's start with the timeline for this document, so we're in the third year of creating this document. This all started in 2015 with the benchmark stock assessment that evaluated the species across three regions. The Board looked at that and saw that the stock was overfished and overfishing was occurring in some cases, and directed the Tautog PDT to develop the public information document, which went out for public comment in September of 2015.

It was a scoping document asking the public for feedback on regional management, a commercial harvest tagging program and goals and objectives moving forward. After that happened the Board then directed the PDT to develop Draft Amendment 1, which is presented to you today. But before that was fully developed, there were some changes regarding the regional breakdown.

Pretty much all of 2016 was spent reevaluating the stock status for tautog across four regions. To evaluate a four region scenario the Stock Assessment Subcommittee had to complete a benchmark stock assessment for Long Island Sound and New Jersey/New York Bight, which was presented last August.

Given a significant amount of time had lapsed between the first benchmark assessment the Board requested a stock assessment update of all four regions; which included 2015 data for all four regions. After stock status was evaluated the TC and the PDT worked on management measures and they were presented in February; this February, but they were state-specific reductions. Not regional reductions.

At the February Meeting the Board decided to use a more regional approach, so if the TC could go back and create regional options to the best of their abilities, then that should happen. The regional management measures are what is being presented here today, and Jay will present that section when we get to that section within the document.

Like Adam said, if the document is approved for public comment today then public comment and public hearings will happen over the summer and it could be approved as early as August.

Each person should have a handout in front of you that shows all of the options for consideration. There are 22 different issues and many different sub-options within each issue in front of you. It provides an overview of what we're going to look at, as well as the corresponding pages in the amendment to where you can find the full text for each option.

This is just an overview of the presentation. I'm going to review issues and options in Section 2.0. Then we're going to move into Section 4.0, which really gets into the regional management measures. This is where I'll present some of it and then Jay will present the regional management options. The regions that have to take harvest reductions are the Long Island Sound, recreational/commercial; and New Jersey/New York Bight, recreational/commercial.

The DelMarVa region is presenting regional options because they would like to propose regional options, although they don't have to take specific reductions. Lastly, I will move into the last part of Section 4.0, where we'll discuss the commercial quotas and the commercial harvest tagging program.

We'll start with Section 2.0. As you know this is Draft Amendment 1. The goals in this document

are from 1996. That is when the FMP was first implemented. There are a lot of goals, A through E. The PDT looked at this and tried to pick out what are the main goals that we're trying to achieve for this species, and then summarized them into a revised goal statement; which is presented to you today.

The goal of Amendment 1 is to sustainably manage tautog over the long term, using regional differences in biology and fishery characteristics as a basis for management. Additionally the amendment seeks to promote the conservation and enhancement of structure habitat to meet the needs of all stages of tautogs life cycle. We were really trying to hit on the regional aspect of this fishery, as well as how important habitat is for the life cycle of tautog.

Originally the objectives were A through J, which was also a bit lengthy, and some of them overlapped. The PDT presented ways that we can modify the objectives, and we showed the revisions one-by-one. Options B through G outlines how we modified each objective or eliminated that objective or combined objectives.

Option H applies all of revised objectives. For example, an objective is to achieve regional management. There is also an objective to encourage EEZ management, as we know there is not a federal FMP for this species, but it's included as an objective to strive for in the future. There is an objective that acknowledges the importance of monitoring, so we can continue to do stock assessments to manage this fishery appropriately. An objective to diminish the illegal harvest as much as possible has been added.

Next we move into the biological reference points. Option A is status quo. Reference points can be modified via a management document; usually it has been done via an addendum. Option B says that reference points can be modified via Board action, so the Board can review the stock assessment and approve it for management use, and say these are the new reference points that will be used for management. There is a bit more text in the document as well that basically says that the reference points would have to come from a peer reviewed document, it couldn't just come out of nowhere. It will need to come from a TC recommended peer reviewed document.

For the fishing mortality target, right now the fishery has gone back and forth on the target that it wants to meet. Most recently it's been 0.15, and that is equal to natural mortality, which was the original F Target for this fishery.

But now that we are proposing regional management there is different F mortality targets for each region. The sub text actually gets at more of the timing of when would the Board initiate a document and when would the Board begin implementation of the document if overfishing was occurring.

If the current F exceeds the regional threshold, that means there is overfishing, the Board must take corrective action via a management document, amendment or addendum, within an X year of receiving overfishing stock status. Right now there is no time requirement. As you this amendment timeline, this whole entire thing started in 2015. We're now in 2017 and still discussing whether or not, or how we want to move forward.

Sub-Option B2 is Board action within one year and then implementation the following year. Sub-Option B3 is Board action within two years and implementation the following year. It is just kind of constraining, so the Board knows when they need to make management decisions, and how quickly this process needs to move forward.

There is also the probability of achieving F target in this document. Right now there are no guidelines as to what the probability would be. When Jay starts going over the regional management options, you'll see there are regional management options that meet a 50

percent probability of achieving F target in 2021, and there are regional management options that have a 70 percent probability. Clearly the 70 percent options include more conservative measures.

There are options in here to streamline this approach. If the Board feels like one would be better than the other then they can codify that in this document, and there wouldn't be so many options for the TC to evaluate or for the public comment to evaluate. The probability options are really getting at what is the Board's level of risk with this species. We wanted to present options for the Board to consider that would codify the risk tolerance in this document.

For the F reduction schedule, right now the timeframe with which you have to initiate a harvest reduction management response is unclear. For this document a three-year timeframe was applied. Right now it says that the F must get back down to the target within three years. The management measures that are presented today have a 2018 through 2021 timeline. If states implement these management measures within this three-year timeline then we should meet the F target. The timeframe could be codified within this document, so it doesn't have to be a point of long belabored discussion. Option B is the management measures must meet the regional F within three years. Option C is within five years.

The stock rebuilding schedule. The Board very explicitly stated in, I believe it was February that they do not want to move forward with a stock rebuilding schedule for this species, but they would like to have it as of course an adaptive management tool.

There is Option B; stock rebuilding schedule can be developed to be an addendum at some future time when the Board designates it. Option C, is the same thing it can be developed to be an addendum, but putting a timeframe on it. When this addendum is created the rebuilding schedule cannot exceed 10 years.

It gives a little bit of guidance as to what the future PDT will have to work with if the stock rebuilding schedule was initiated. That was based on initial discussions for the TC just considering the life history of the species. That's where the ten year kind of came from, as well as what is the standard operating procedures for federal fisheries as well. That is the end of Section 2. Are there questions on the goals and objectives of this FMP?

CHAIRMAN NOWALSKY: Okay, so thank you, Ashton. We're going to go through, we'll ask any questions. Again, we do not have to select any preferred options here today. The goal is to get this document out for public comment at some point either this meeting or next. If there are requested changes to something, we can try to do those by consensus. If we don't have that then we'll take motions and votes on those items.

But we'll start with questions on those items that were presented by Ashton in Section 2. I'm going to take the liberty of asking the first one. For Section 2.7.1 with the timeframe for the Board actions, when we talk about the Board must take corrective action via a management document within a timeframe. Are we talking about initiating a management action or finalizing that management action in those Sections; understanding that it allows for an additional year for those measures to actually be put in place by the states?

MS. HARP: This was a point of discussion whenever we were putting this in. It currently says the Board must initiate corrective action within a year of receiving overfishing stock status, and then it must be implemented the following year.

CHAIRMAN NOWALSKY: Okay, so I would say we ought to clarify that in saying that it's initiating those management actions for Sub-Options B2 and B3 in the document. Additional questions on Section 2. Any comments, things people would like to see changed in Section 2 before a

document went out for public comment, or are they comfortable with these? The one item that I will bring up, so one of the things that staff's had to do a lot of work with is developing the options under the 50 and the 70 percent probabilities.

When we started out this discussion we had a number of different regions, we had a number of different probabilities. I think staff has been pretty consistent in their encouraging us as a board to try to minimize those options to as few as possible. Part of that being just clarity for the public's sake. This item here, the second part of 2.7.1, Options A, B, and C, status quo 50 percent probability of achieving F target, 70 percent probability of achieving F target. When we get into the perspective measures with Jay's presentation, we have those developed for presentation; but it has been staff's ask for consideration about taking either of those out of the document; which would then take those range of measures out of the document in the next section.

I'll just ask, is the Board willing to entertain any discussion about keeping both of those options in there, the 50 and the 70 percent probabilities or is the desire to keep them in, keeping in mind we'll see those perspective measures if you want to hold off. But if you want to have any discussion about it now, now would be a good time to do so.

Okay, seeing none; what we'll do next is I'll also ask if anybody, we're not specifically having a presentation related to any other sections in the document besides Sections 2 and Sections 4. There is a wealth of background information in Section 1 primarily. There is a lot of additional information in other sections, monitoring and other items.

I'll ask at any point during the day today, if somebody has questions about one of those sections or suggestions for revisions before the comment goes out, to please jump in and make those suggestions as well with those other sections. With that we'll go on to the discussion regarding Section 4, and a presentation from Jay.

MS. HARP: I was going to start out with just the regional part and then I'll turn it over to Jay. Regional management is new for the species. We've previously been managing tautog on a coastwide basis, so Option A is status quo, coastwide management. Option B is regional management.

This basically says the regional management option here is a four-region scenario. That could change in the future if there is new data to suggest that the regions should change, then the TC can evaluate that and bring new recommendations to the Board; although that would require a new management document to change the regions for tautog.

As they're listed now, the first region is Massachusetts-Rhode Island, the second one is Long Island Sound, the third one is New Jersey-New York Bight, and the fourth one is Delaware, Maryland, and Virginia, and all of the management options that Jay will review are based on this regional structure.

There have been considerable discussions around the Long Island Sound boundary lines. The Law Enforcement Committee met earlier today to discuss it, and Jason will review their feedback at the very end of this presentation, so I just wanted to present to you the two options that we're presenting for Long Island Sound here today.

Option B1, as you can see is also Long Island Sound Option 5 up there, is the one we were originally proposing, which is Montauk Point, New York to Watch Hill, Rhode Island. This boundary line includes the area of water that was assessed as part of the Long Island Sound stock assessment. New York staff had to go through and clearly separate the data in MRIP for Long Island Sound and the New York South Shore part. MRIP folks confirmed the MRIP data for

Long Island Sound includes Peconic Bay. This would be how the stock assessment was done.

This second option, B2 is Long Island Sound according to the colregs line. This goes from Orient Point, New York, over to again, Watch Hill, Rhode Island. As you can see, it excludes Peconic Bay. That would now go into the New Jersey/New York Bight region. The Long Island Sound includes more restrictive management measures versus the New Jersey/New York Bight area. That is one thing to always keep in mind. This could be a contentious line.

REGIONAL MANAGEMENT OPTIONS

MS. HARP: With that we will move into the regional management options.

MR. JASON McNAMEE: Thank you, Ashton. My name is Jason McNamee; I work for the Rhode Island Department of Environmental Management. I've got a series of these options. This just gives you a look at what the various conceptual options in the document look like by way of management in your state.

There are a lot of them. I'll do my best to; Ashton did a great job of trying to put them into forms that are kind of understandable, and I'll do my best to fumble my way through them. I'll look to Ashton to save me if I start messing anything up. But you'll see as we go through how they're broken up, and I'll do the best I can to explain them.

Just to start off, you've heard this already a couple times. We've got overfishing occurring in two of our areas; that's Long Island Sound and in the New Jersey-New York Bight Regions. In each case what you're going to see is a set of recreational options, and in those recreational options you're going to see two risk probabilities that we looked at.

There is a 50 percent probability of achieving your F target, and then a 70 percent probability of achieving your F target; the same for the commercial in these two areas. Overfishing is not occurring in the Mass/Rhode Island or the DelMarVa regions, but there are still some options to take a look at.

Even though there was no requirement to take reductions, there was still interest from the Board originally, and also amongst the Technical Committee to take a look at some options to see what consistency looks like in those regions. We thought that would be informative for the Board. All right quick, we'll call them rules of engagement here.

You're going to see, you've got recreational and commercial options. What we are asking is to not choose separate risk probabilities when doing this. You're going to see, it gets confusing enough to keep track of everything. In particular, the way the analyses are done, the logic would not follow through if you chose different risk probabilities for the two different sectors. Just to continue on here, this would be the way to go, so just be consistent across both of your selections on that.

There is a slide here that says methodology; but really I'm not going to go into that. We don't have time. But even before we knew we didn't have time, I had gone through it last time we all met. It's pretty standard stuff. It's the same types of things you've seen in summer flounder and black sea bass; you know those same types of approaches. There are two differences though, and that is we've got some slot limit options in here. Those were done in two ways. The Long Island Sound version, Jacob, who is from the University of Connecticut, PhD student, was up here with me; if not last time the time before. He did a nice analysis; it is part of his dissertation work, actually. But his is based off the assessment.

He does a nice job. We could sit here all day and talk our way through that. We won't do that. But the Technical Committee did review it, and appreciated the work, and vetted the work. I also think the New Jersey-New York Bight, I know

they have a slot limit option in there. I think their analysis is slightly different, didn't use that modeling approach; used more of a standard approach to determine those.

I just wanted to make sure that's clear. I'm happy to try and answer any questions you have, but there are not a lot of slides, or any slides with equations or things like that; which you probably appreciate. Okay so here's a legend for some of the stuff you're going to see in the following slides. If you see this, the big box at the top there is just kind of – I'll call it gray.

If you see that in the table, you'll know that that is a closed, no fishing period of time. Then you've got these shades of – I'm going to call it purple. The reason for the different colors, are if a bag limit changes or something like that. You can see where that happens, the color will change. But basically any shade of purple means that that's a season that's open with a bag limit of some sort.

We're starting off; we're going north to south here, Massachusetts, Rhode Island. Again, no reductions are needed here. But we did put forward a couple of options to look at what consistent regulations might look like. Here is the structure you're going to see moving forward. We're going to have a table up front.

In most cases what you're looking at with the table is some of the changes that kind of move forward, not in a regional approach, but more in a standard approach; meaning each state just takes the reduction in the way that makes sense for that state alone. Here it didn't matter for Rhode Island, so what you're looking at in the first row of Option A that's our status quo regulation.

Massachusetts and Rhode Island each have 16-inch minimum size. We have different seasons, different bag limits; and again we don't need necessarily to take a reduction. We looked at one that matches up our seasons, and then Rhode Island is the one that has a split bag limit. Massachusetts has three fish all year.

What we've done here is we've matched our seasons up. Massachusetts would implement a spawning closure, which Rhode Island has. Then Rhode Island would drop its fall bag limit from six down to four, and that would be an increase for Massachusetts in the fall. Then there is a final option that just makes everything really consistent, three fish with matching seasons.

This is the next type of table you're going to see for all of the subsequent stuff, and that is, I think it was Alexi from the DelMarVa region who had put together a table with these kind of shading, and it gives you a good visual look at the information, and so we carried that forward here. The A again that represents for the Mass/Rhode Island region that is our status quo measures. That's what it looks like. You can see that Massachusetts is open all year at three fish, so it's purple across the whole row with the three there designating that bag limit Rhode Island has two seasons with a spawning closure, so you can see that there as well. Then part of the season we have three fish, and then the tail end of the season we have six fish. That's what that Option A looks like in our little colored version here.

Then the next two rows show those consistent regional approaches. All right, so now we're going to jump into Long Island Sound. Here overfishing is occurring, because we still have both a 50 percent and a 70 percent probability of achieving the F target on the table, the range of needed reduction goes from 47.2 percent up to 52.6 percent.

Here are the recreational measures for Long Island Sound, so in this case, in this table, what you're seeing is a stand-alone set of options. It says status quo, but that's a trick. It's not really status quo. It's just using status quo idea of just taking the reductions within your state without consideration for the other members of the region, and that's what this table represents.

You can see Connecticut has a 17-inch fish; they've got two different periods of different bag limits, one period with one fish, one period with two fish. You can see the seasons there, so that one- fish bag limit period is broken up into two; and then they've got that fall season at two fish. That first one there achieves a 48.1 percent harvest reduction, and this is the option with the 50 percent probability of meeting the target.

For New York, same type of information. They have a 16-inch fish, they have a one-fish possession limit in this option, and one season that basically is only in the fall; Option 2, same idea, but in this case to meet the 70 percent reduction. That is kind of the stand-alone state-by-state version of the options.

Here is an attempt at trying to implement some ability to be a little more regional, and so the idea here was just to get the options as close to each other as possible, because of the magnitude of the restrictions here we weren't able to sync up completely here like you saw for Mass and Rhode Island. I'll just walk you across the top one there.

Again, we're still in recreational measures. You've got in the first three rows you have a 50 percent probability of meeting your F target. The bottom three rows is a 70 percent probability, and let's take Option B1. As you walk across there you have Connecticut and New York. They would sync up with a 16-inch fish and a one-fish bag limit.

Then Connecticut would have a spring season in the month of April. Then they would have a spawning closure, a really long spawning closure, and then they would open back up in mid-October through about mid-December. Then the New York version of that again, I am not able to shoehorn in that spring season, so they would open up at the beginning of October, and extend to about mid-December.

You can see, hopefully that makes sense, and then B2 and B3 are just different versions, just to give you a sense of if you go up in minimum size, you can get a little bit more of a season, particularly in Connecticut, and you can up that bag limit to another fish. The very last one there, not the very last one but B3, what you see is that would be an option that syncs them up. That would be the only one that you could have consistent regulations; and that's what that looks like. Then the bottom B4, B5, B6 that represents same concept, but trying to meet that 70 percent probability of meeting the target. I'll try to go a little quicker from here on out. I just wanted to make sure folks can follow along. Now what we're getting into is a set of commercial measures. Again, here are the options where we're just operating in a state-by-state version, taking the needed reductions.

There is minimum size, bag limit, and open season. One note I'll make here is there was not a lot of information to work with for the commercial fisheries, and so we're doing a lot of borrowing of information from the recreational fishery from MRIP, and applying it over. Just keep that in mind. That's one of the reasons, as I mentioned it would be problematic to choose different risk probabilities, because there is a lot of conflation between how the methods were calculated.

You have status quo to meet the 50 percent probability of reaching your target is A1, and A2 is to meet that 70 percent probability. Here is the more regional approach. A nuance on this slide is you've got, under the 50 percent probability what you have is a quota. In Connecticut you would have a 2,700 pound quota, and then a 39,000 pound quota for New York.

Instead of trying to manage it like we do the recreational fishery, turning the dials of size, bag, and season here, you would put in a quota to manage that fishery. Down below under the 70 percent probabilities, you have both versions. You've got a version that manages more like the

recreational fishery, and then one that again manages with a quota to meet those targets.

You can see this was as good as they could do with trying to sync up the seasons. Here you have Long Island Sound still, and now we're looking at recreational and commercial; recreational on the top and commercial on the bottom, I think. Is that right, Ashton? Oh that's right. It would be the same for recreational and commercial.

You're looking at different pieces of information of the same management in the top and bottom tables there. Here you would have a two-inch slot limit, so you would get some level of reduction from the slot limit; and then these are the seasons and the bags that you could have in Connecticut and New York.

Moving on to the next region, now we are in the New Jersey-New York Bight region. That is the outside of Long Island down through New Jersey. In this region overfishing is occurring. It's not as severe as was the case in the Long Island Sound. The needed reduction here, again because we have a 50 and 70 percent probability of reaching the target, you can be anywhere from a 2 percent to an 11 percent reduction needed.

This table again is your status quo state-by-state version of taking those needed reductions. The top table there shows what it looks like for a 2 percent reduction, and the bottom shows what it would look like for an 11 percent reduction. You've got in New Jersey a bunch of different, at this time several bag limits, kind of switched through the season.

In the New York Bight region you've got more consistent measures, 16-inch fish, four-fish bag, and then that fall season again. Here is an attempt at providing some consistency between the regions. Up on the top there you've got single contiguous seasons, this is recreational by the way, and so you can see each state would have a four-fish bag and the seasons do overlap, although the New Jersey season would be a little bit longer. Then the 70 percent probability is that set of three options down on the bottom, and you can see there are different size limits as well that are coming into these options. Here is a slot limit analysis for this same region. This gives you a look at what those look like. You can see for instance, in C2, it kind of increases in consistency as you go down here.

Just so folks are aware, C1 would get you a 2 percent reduction, C2 would be an 11 percent reduction, and then C3 where they are completely synced up, would actually be a little bit more, a 13 percent reduction. Here is the commercial side. You've got again New York Bight and New Jersey, and the two variations, a 2 percent and an 11 percent.

This is just looking state specifically how those reductions could be met. New Jersey does not have a possession limit noted. There is no possession limit, what they have is, I'll call it, you guys can correct me if you call it something else, but it's sort of a soft quota. They've got a backstop, where when they get to a certain level of harvest they would potentially stop their fishery or curtail their fishery in some way. But there is no bag limit for them at this time for the commercial sector.

Then again looking at the region, here what you can see is what they're attempting to do here is to implement that spawning closure; and so that's why the seasons are split there. They are trying to get at different variations where they take their closure, and that closure would occur during the spawning time for tautog.

Then this is a variation that does a commercial slot limit, just like we had for recreational. I'm sorry if I neglected to say this here. This slot is a little bit larger; it is three-inches, 15 to 18 inches, so part of the reduction is coming from that slot limit. Then C4 and C5 are different in that C4 meets that 2 percent reduction, and C5 meets the 11 percent reduction.

You can see not a lot of variation there, a little bit more, a longer closure for New Jersey. We are now down the coast here in DelMarVa, no reductions are needed here but again this region, some options were put together just to get a look at what consistent, or as consistent as possible management would look like.

Here are your current measures. These are status quo in Delaware, Maryland, and Virginia. Maryland and Virginia have that 16-inch size, 15-inches in Delaware. Then there are different variations of bag limit and season combinations for the different states. This is what it looks like. This is not now any new scenario; this is just a visual representation of your status quo measures.

Then here is a version that syncs everything up exactly. Let me walk you through what each of them represent. Option B would actually be a liberalization by about 8.5 percent, so that would be an increase in harvest. C and D represent reductions. C would be an 11.9 percent reduction, and D would be an 11.6 percent reduction; pretty close to each other there.

That is the end of the management options. I'm going to flip to the next slide, I'm not sure if I'm exactly supposed to, but just to reiterate, I think Adam offered the question very overtly. I was going to do more of a Jedi mind trick kind of thing, but in any case it would be, you saw how convoluted, how many options there are here for this. A lot of that has to do with you've got two versions of risk. I guess my personal opinion, not a statement from the Technical Committee. I don't know what kind of feedback on your risk policy you would get from public feedback. Maybe you think you will. But I offer that it would cut down the many options that we just walked through, if you were to select one of these 50 percent, or 70 percent probability of reaching the target; rather than going out with two. I think trying to indicate that nuance to the public would be difficult, and with that I will pause for any questions.

CHAIRMAN NOWALSKY: Okay, so Jay you did a wonderful job. That took us through 20 pages of the document; that was impressive. Before I take questions, okay, I'm going to break just slightly from how we typically do this.

What I'm going to do is I'm first going to turn to Law Enforcement, who has got comments on boundary issues, enforcing regulations within a state where there are different regulations, consistency of state measures; to comment on some of those items.

Then what we're going to do is we're going to go through each of these items 4.1 and then each of the ones, 4.2 and all of the sub-options in there, bring them up one at a time and have questions and discussion about each of them as we go through, so we're not all trying to remember 20 pages back.

LAW ENFORCEMENT REPORT

CHAIRMAN NOWALSKY: Let me first turn to Captain Snellbaker, and we'll get a Law Enforcement Committee report on some of these options, and then we'll start getting into questions and discussion, about how we want to move forward with the document for this section; Captain.

CAPTAIN JASON SNELLBAKER: The memo dated March 28, 2017 is based on March 17, the Law Enforcement Committee met to talk over the issues with the Long Island Sound. The Law Enforcement Committee members were briefed on the possibility of two sets of management measures for tautog in the state of New York. A split would provide the different management measures between Long Island Sound and the ocean shore of Long Island.

The LEC discussed a number of concerns and difficulties enforcing such a management plan. I'm going to pull out some of the highlights of that discussion. As far as defining a boundary line between areas, the Law Enforcement Committee had concerns where there were no clear markers or references.

A boundary line over the water without clearly visible landmarks or demarcations is almost completely unenforceable. We also see an increase of accidental navigation in these areas. We prefer boundaries such as a colregs demarcation line. From an enforcement standpoint too, we also have to do verification, you know e-Navs, to make sure that the officers are in fact where they are, to be able to prove beyond a reasonable doubt in court.

That's a little more effort on our part. As far as enforcing different regulations in close proximity, the Law Enforcement Committee as a whole, we've seen a shift in anglers; anglers will shift their efforts and go where there are less liberal regulations, which sometimes causes a problem with strict possession and enforcement.

It's not always clear to people that we apply the regulation where in fact that inspection occurs. It just creates a lot of confusion, and again we do see a significant shift in fishing effort, depending on where there is more fish to be caught, because the regulations are less restrictive. We also discussed the establishment of a buffer zone, or a safe zone as it was put. Such a zone would simply add to the confusion for the fishermen and enforcement officers on the water. We felt that a buffer zone would not provide any significant benefit, it would just add to the confusion. We also had a concern of in that buffer zone we would hesitate to go check other people taking the resource, because you may run into a situation where there is an egregious tautog violation, and we wouldn't be able to enforce it because of the buffer zone.

Like I said, it would prohibit us from potentially checking other types of people partaking of other fisheries. The Law Enforcement Committee strongly recommends consistent regulations amongst the states. The Law Enforcement Committee particularly stresses the importance of uniform size limits.

Again the issues, when somebody gets back to the dock, it makes the issues with size and bag limit less enforceable, because we don't really know where those fish were caught. With the limited resources we have, it just makes enforcement very difficult. Again, we stress the consistency amongst the states.

Also when it comes to commercial enforcement, remember if we're at a market or an inland area, we don't know where those fish came from. Again, consistency makes our job a lot easier. We also had a discussion this morning. It was noted that Option 5, I don't know if you have the map up there. We though Option 5 would be better for compliance for fishermen coming from Connecticut.

I think we would get buy-in from our Connecticut fishermen. But at the same time Option 6 was a clear and concise boundary, which would actually be better for Rhode Island fishermen. Like I said before, we do like where there is a clear boundary. Our colregs demarcation line is actually on most GPS chart plotters, versus not having a clear definitive boundary where it just adds to confusion and less enforceability. That's all I had, if anybody had any questions I would be more than welcome to answer them.

NEW YORK LETTER TO THE BOARD REGARDING THE LONG ISLAND SOUND BOUNDRIES

CHAIRMAN NOWALSKY: Okay, thank you very much, Captain. That takes us to questions and discussion. I'll just begin with first presenting the concerns of New York. As many of you know there was a letter that was sent to the Board, reiterating some of New York's concerns with a lot of the items that are included in this section, including the demarcation line, and including the separate regulations within the state.

Staff was generous enough to devote some time to a phone call, with myself, Jim Gilmore, Steve Heins, John Maniscalco from New York. As an outcome from that call, were the sub-options for splitting the Long Island Sound line at the colregs

line. Additionally what came out of it was some additional feedback from enforcement on that as well as getting staff from New York in touch with ASMFC staff, to answer some additional questions about the calculations.

I'm sure Jim will have some more comment about that. But I just wanted to let the Board know where we stood with that. What I'll do, I'll ask staff to go back to the beginning of the Section 4 presentation. We're going to roll through each of the items here; questions about them or any comments or modifications to these options.

The first item we've got is the regional boundaries, which presents two options, the coastwide management that we've used in the past, status quo if you will, as well as the new regional management with the four regions that this Board previously agreed to utilize; and also incorporates the two options for dividing the Long Island Sound and New York Bight areas. Are there questions for Jay, staff, or Law Enforcement, or comments, discussion on this section of the document? All right, seeing none; those options will remain in the document. Those options will remain in the document as they presently exist.

Apparently you all got wind that we get lunch when we're done here. I will tell you that the schedule said we're done at 12:30. I have had that negotiated to 12:45, so you're going to be stuck here for a little bit longer. The next section is regional management measures. We've got the options that were presented for both, what was referred to in the document as status quo, then with 50 and 70 percent reductions those don't apply for a couple of the regions.

What I asked staff to do was to update the document. Instead of using the term status quo, which doesn't refer to status quo measures, but refers to the same mechanism of state specific regulations that differ from neighboring states; to refer to that in the document as state-specific as opposed to status quo.

Do we have any questions or discussion for the Mass-Rhode Island proposed management measures that are in the document? Okay, seeing none; that section will remain as is with the modification from the status quo term to state-specific. Section 4.2.3 is Long Island Sound, proposed recreational and commercial regulations, as well as the options for 50 and 70 percent reductions.

Jay made another attempt to have some discussion about having only one of those in the document, I'm getting the sense we're fighting an uphill battle there, or I think I'm ready to throw in the towel on that one, unless somebody else feels otherwise. But let's go ahead and turn to questions and comments on this section. Mark.

MR. MARK ALEXANDER: I have two questions. The first is the Genesis of this amendment predates my time on the Board, so pardon if I'm missing some information here. But how were the commercial quotas derived for Long Island Sound?

CHAIRMAN NOWALSKY: I'll turn to Jay for that.

MR. McNAMEE: What I believe they did or Jacob did, was just to take the average harvest that has been occurring under the commercial sector, it was the average for the last three years, and then make the adjustment from that average harvest level.

MR. ALEXANDER: I just want to comment that Connecticut took some very conservative management measure changes following the 2011 assessment. I think we've been penalized for that and I would appreciate an opportunity to maybe reconsider how those quotas were determined. Katie, do you have a response to that?

DR. KATIE DREW: Yes, The quota that is being proposed here under the commercial regulation section is basically based on how much of the cut the region needs to take to come down to the F

target. For the overall commercial side, we're not saying these are set in stone, but there are a couple things you would have to consider, which is number one, do you want to split the reduction equally between the commercial and the recreational side? Our direction was, yes we want the recreational to take the same percent cut the commercial does. That limits how much, the amount of fish you can actually take out, in order to reach your F target; which is therefore that's the commercial quota that is shared with Connecticut and New York. Now that doesn't mean that you guys can't negotiate how much goes to Connecticut and how much goes to New York. But there is a limit on sort of the upper bound, if you want to make that target and if you want to keep the allocation between commercial and recreational the same.

That average of the three years was the amount that went into the projections to come to how much of a cut you need to take overall, to meet your target by that time point. There is kind of an upper limit on the amount of the quota that can be attributed to the commercial, unless you want to make some of these allocation decisions here at the Board level.

MR. ALEXANDER: Thank you Mr. Chairman, I have one more question.

CHAIRMAN NOWALSKY: Please go ahead, Mark.

MR. ALEXANDER: Given the small quota that we have in Connecticut, our interest would be in maximizing the value of that quota; and given that there is a premium on small fish in the live market, and there is a premium on large fish in the spawning population.

Was any consideration given to having a small minimum size, say 12-inches or something like that in the commercial fishery; especially if we're going to be under quota management, where a limited number of tags would be issued? I'm just wondering if something like that the feasibility of something like that was discussed?

CHAIRMAN NOWALSKY: Jay, Katie, tag team?

MR. McNAMEE: I guess the way I will answer is to say, the closest we got to what you're interested in is that slot limit analysis. That does account for, in particular because Jason was using the stock assessment information and projecting from that. It is considering things like the yield loss from taking that smaller fish.

But to get all the way to 12-inches, we did not consider that in our analysis. Were that to be something that the state of Connecticut or whoever wanted to see, we would have to go back and redo those analyses, because it would cascade through all of the other metrics that we used. Keep in mind that even though it's commercial, at this point it's being managed very much like a recreational fishery, so we're operating under a lack of a lot of solid information.

CHAIRMAN NOWALKSY: Just also, Mark touched on a couple items, quota and tagging. We have those items for discussion after these sections as well. Next on the list I had Emerson.

MR. EMERSON HASBROUCK: I had two questions, one was the same question that Mark asked about quota, and my second question was relative to the tagging program; which you said will be discussed a little bit later, so I pass.

CHAIRMAN NOWALSKY: Okay, do I have any other questions or discussion on this? Mark, did you have any specific requests you wanted to ask the TC to review? Obviously again, those tasks would result in delay of sending this document out for public comment. Was there anything you wanted to have jotted down here at this point?

MR. ALEXANDER: I wouldn't mind having the feasibility of a smaller possession limit in the commercial fishery under a quota situation be examined, just to see if that's even possible, or how it would impact the magnitude of the quota.

DR. DREW: Just a quick comment on that. The projections in these calculations are done in terms of number of fish, and then for a commercial quota translated into weight, based on the average size of the fish in your fishery, so the number of fish probably will not change, although there are certainly considerations to be given to the fact that how close 12-inches is to a mature fish versus 15-inches.

But what would happen is the quota would probably go down, because you would be catching a smaller average fish. If you multiply that through the quota might come down. But understanding that it's also a market consideration, and I think it's something we could look at.

CHAIRMAN NOWALSKY: Any other discussion on this section? Okay seeing none; we'll move on to New Jersey/New York Bight, 4.2.4; questions for Jay, Katie, Law Enforcement, discussion? Okay, seeing no hands up; we'll move on to the DelMarVa region. I believe I saw a couple hands up for that Section 4.2.5, John Clark.

MR. JOHN CLARK: A clarification and a question. Jay, do you have the options up for Options B through D on there, because what you showed on the screen the closed seasons for B and D are identical, yet in the document they are off by a month. Option D has a closure from June 1st through July 31st, while Option B is May 1st through June 30th. I was just curious as to which is correct.

MS. HARP: Sorry about that. I did mean to explain that. The presentation is correct. What's in the document is not, and that was an oversight on my part. Alexi did send the options which included proposed spawning closures in May and June, and it just wasn't adjusted. Status quo crept back in, but now this is correct. All options have a May and June spawning closure in them.

MR. CLARK: Then the only, the second question I had there was just because I'm sure the question would come up in Delaware. If we go to a 16-inch Option D, results in a reduction in landings. Do you know what the result would be if the closed season was one month instead of two months there? Is that something that could be calculated? I'm just curious; because I'm pretty sure the question would come up.

MR. McNAMEE: Off the top of my head I can't give you a number. But we can certainly calculate that, John.

CHAIRMAN NOWALSKY: Okay, so just to confirm that change is, has been made in the electronic document, but wasn't in the document in the meeting materials. Okay, are there any other questions or discussion about that section? I'll give them a moment to discuss what they're doing here.

Let me turn to Jim, just with regards to the letter from New York. We had the call. Hopefully that was informative, you got some of the information you were looking for. I'll turn back to Toni here in just a moment. Understanding your position and New York's previous voting history was there any other discussion or anything you wanted to have before the Board, with respect to the letter. We went through that section, didn't have any more comment here, so I'm assuming that you're okay with the options that we have in here; at least as okay as you're going to be. I wanted to give you that opportunity, and just for the Board's edification, let you know where we stand with having responded to the letter with a phone call.

MR. JAMES J. GILMORE, JR.: Yes, I think probably that's a way to characterize it, as good as I'm going to be. I think I went from what started out as a headache is turning into a migraine, because now after I saw Jay's combinations with different percentages, and then remember when you're looking at those regional things that's within the region, and then again you get to the east end of Long Island; and now you've got the border between two regions, three states, four water bodies.

I think the only thing I'll maybe summarize in the letter there we're very concerned about, and kind of it was a summary of it. It's like; you know we can make this work on paper. That will be great, and we'll all go home and pat ourselves on the back and say we've got a great plan. But it's not going to work on the water.

I think the reality is that when you get to the east end of Long Island from the LEC report, is we're going to have what's probably the best way to characterize it, the least restrictive rule. Whatever the best set of limits are is what they're going to be fishing for, because law enforcement's going to throw their hands up and go, we can't figure out where they caught these fish.

Just so you know the courts in New York in particular are very, very supportive of fishermen over enforcement. A lot of cases just get thrown out, with black and white arguments from law enforcement, just because they just tend to side with the fishermen. I just see a state where they're going to take the best set of limits they can get, and if they get a ticket they're just going to get it defeated.

We're going to have to be able analyze this based upon the least restrictive rule. Assume that if say for arguments sake it was a 15-inch size limit, and the longest and the highest bag limit. That is what everybody's going to be fishing. I think we need to factor that into the landings, which gets to the last part. Then we're using MRIP.

Now we've been using MRIP for summer flounder and black sea bass, and we've been having headaches in the sampling size, it's dramatically much larger than what we're going to be doing for black sea bass. Now we're taking MRIP, and we're about to do this again. We're going to take MRIP and extend it well past what it was designed to do, to try to manage this fishery.

As I said, I've gone from a headache to a migraine as I see this going forward. I think what Ashton had said before. We have that option that when we get down the road that we can tweak these regions and make a new addendum or new amendment to try to get regions that actually work. I just want to emphasize that. Because I think we're going there after we implement this thing. I'll stop.

CHAIRMAN NOWALSKY: If I understood Captain Snellbaker with regards to Option 1 being the line for Montauk Light House northward versus Option 2. You're kind of on the fence with that; because Option 2 provides the benefit of the colregs line, but Option 1 presents more of an obvious line for Connecticut fishermen, if I heard you correctly. There's not clear winner out of those options for Law Enforcement.

MR. SNELLBAKER: That's correct. It was mentioned that this is where public comment is going to weigh in heavily.

CHAIRMAN NOWALSKY: All right so with that I am going to close the book on the 4.2.4 discussion. Toni wanted to address something with the DelMarVa discussion.

MS. TONI KERNS: Actually two clarifying questions, and one for the DelMarVa. It is my understanding that the May and June are spawning closures, and the Board had asked for spawning closures to be included in these options. Spawning closure is the way it's written out in the document as you read on further.

Those are sort of non- negotiable closures. You asked for them to tell you what we need to open up one of those months; but if it's a spawning closure that would be problematic. For curiosities sake, do you want them to run those at values for you, or?

MR. CLARK: No that's all right. I don't know how closely it corresponds right now to when tautog are actually spawning off of DelMarVa, but anyhow, I was just curious.

CHAIRMAN NOWALSKY: Well Toni, let me ask you this. Is there more flexibility given to modify those if we don't specifically reference spawning closure in the document? I mean are we hamstringing ourselves by using that term, and that those then become fixed months of closure with no opportunity for modification, and some equivalency? Are we better off just leaving those as closed months, possibly referencing spawning, but not specifically calling it a spawning closure?

MS. KERNS: The spawning closures were based off of scientific information. We referenced where we got it from in the document. I can't remember off the top of my head, but Katie might be able to tell me. She's looking at me like yeah. Yes, you are allowed to change those through the addendum process; but you are not allowed to change spawning closures through the conservation equivalency process, because they were based on the scientific information. If you don't' want to say your rationale is spawning closures then you would need to change that direction.

The more changes you're asking for, the more we will probably come back and tell you you're going to end up delaying this document for public comment. Because in the document there are several sections that are sort of tied to this being spawning closures, and the way we presented it to the public. My other question, because I'm not clear is did Mark ask specifically for us to create an option in the document for both the 50 and the 70 percent risk for a smaller size limit?

CHAIRMAN NOWALSKY: I was definitely going to come back to that one. Well since you ended with that I'll just go back. Mark, after what you heard from Katie, are you looking at something specific being changed there?

MR. ALEXANDER: Actually what I was thinking of doing, since that would heap more work upon the TC, I thought I would throw you a bone and offer up an option under Section 2.7.1 that we eliminate Option C, the 70 percent probability of achieving the F target from the analysis and from the document.

CHAIRMAN NOWALSKY: Okay, so let's try to deal with the DelMarVa question then first on the spawning closure; and then we'll come back to that. Let me turn to DelMarVa and their thoughts about, are you interested in removing the spawning closure references to gain the benefit of the flexibility of conservation equivalency. I've got John Clark and Mike Luisi. John.

MR. CLARK: Yes, I just brought that up just because I saw the reduction there. But if we explain it as the spawning closure, I don't think there's a problem there. It was just more of as I said curiosity there. But given the explanation, we can leave it alone.

MR. MICHAEL LUISI: I was going to suggest to be able to have a little flexibility is always nice, specifically for Maryland. We currently have an open season during that time period, and the thoughts from our fishermen; they're suggesting that we do not. Black sea bass opens on the 15th, I believe of May.

There was a hope that any closure period would allow for the tautog fishery to run up to the beginning of the black sea bass fishery, so there wasn't a two week period of time where the headboats that fish for both of those species would have nothing to fish for. Having a bit of flexibility to modify the dates, I'm not suggesting we eliminate the first 15 days of May, and not add into July. That's something we may want to talk as a region about, to make sure that we're not causing some problems with the business end of the charter headboat fleets.

CHAIRMAN NOWALSKY: Well, do you have a specific request for modifying the document? You basically heard that if we keep all of the labels in as spawning closure and associated sections, it would likely be limiting in that flexibility. The option would be to modify the

document to remove those specific references and labels as calling them that and giving you that flexibility. What's your pleasure? If we get none then the document will stay as is.

MR. LUISI: Well I would suggest removing those labels, and I don't know if you can specifically do that just for our region. I'm not trying to cause any problems here. That's the last thing I want to do is to create a problem that finds its way weaving through all the different regions and the entire plan. But I was just hoping for a little added flexibility. I'll look to you, Mr. Chairman as to, I don't think it's going to be a big deal one way or the other, but I'm not trying to cause problems here.

CHAIRMAN NOWALSKY: No problem at all. From my perspective this is 21 years in the making. This is Amendment 1 from the original FMP, 1996. We spent three years on it. I made the comment on another species. Let's do it right. I think that's what the important thing is, as opposed to going back and saying wow, we could have done this, because then what do we wind up with?

We spend another two or three meeting cycles going through some addendum process. I'll turn to staff and get their thoughts on are you clear on the request from the Board, and my recommendation would be not just limit this to DelMarVa, make it for all the regions that we have these proposed closures; but not specifically label them spawning closures, provide some reference to we're using spawning as guidelines for recommending these closing periods. But we're not specifically closing these time because of that. Is that enough direction? Toni.

MS. KERNS: It's enough direction, but I would ask the Technical Committee Chair. These spawning closures in some of these areas are put in place because of the need for the stock to rebuild. Interrupting spawning has the potential to affect rebuilding. My question would be to the TC Chair. For the areas that need rebuilding, by allowing us to alter the spawning closures to allow fishing to occur. How is that going to impact the rebuilding of the stock?

CHAIRMAN NOWALSKY: Jay and specifically I think I would like to hear an answer with regards to any calculations that have been done; if they're going to be affected by that.

MR. McNAMEE: No calculations. The way that I understand Toni's question is, if you interrupt or impact a portion of the spawning period. You know that's difficult to know, the spawning period does change year to year. Not shockingly, meaning it might be a week earlier or a week later that sort of thing.

Could I offer one other thing though, Mr. Chair. It is just for consideration. I mean when we were going through this, we were talking about spawning closures. But at no point was there ever really specific guidance. In other words, no one ever said, and we want you to capture 85 percent of all of the spawning that is in the scientific literature or 50 percent or we want you to bound the maximum peak by a month on each side.

We did the best we could to capture what looked to be the spawning period going back, looking at ichthyoplankton data and egg data and stuff like that. But we're not working under very specific guidelines in that case. My thought is I wonder if there is already flexibility inherent in the fact that we didn't have a strong definition for spawning closure.

CHAIRMAN NOWALSKY: Well, I'll go one step further in that I think this Board has made clear in past discussions, discussion today, development of this document that spawning periods are clearly important. Any regulation that comes forward that is modified for conservation equivalency is ultimately going to have to be approved by this Board.

This Board is going to have that final say, and if a state brings forward a proposal that we look at

and simply say, this conflicts with what our goals have been, our discussion has been. I think it would then incumbent on the Board to go back to the state and say, no this doesn't work and here's the reason why.

I think we have that backstop. I think it wouldn't be completely true to simply say, if we took out the spawning closure designation that all states could just freely open during spawning. If they do so, I don't think that's necessarily the case. But I appreciate those comments. I'll turn to Toni for one more comment on it.

MS. KERNS: That's fine, Adam. I think that if the Board is still stressing the importance of spawning and spawning closures as a tool. But you're okay with having them altered through conservation equivalency, and then we could just remove that reference that you can alter spawning closures through conservation equivalency. Then that gives Maryland and Delaware the flexibility to alter their season closure through a conservation equivalency plan. Does that work?

CHAIRMAN NOWALSKY: I'm seeing thumbs up from that side of the room, and heads nodding, so I think the answer to your question is yes. That works. Okay, where we are just to frame up where we are is we've got a number of other options to get through for Section 4.3, but Mark Alexander brought up after seeing these options that he's now reconsidering; and I'll turn to him for your comments and potential motion about the 70 percent reduction options in the document.

MR. ALEXANDER: Yes, I offer up that motion. I think that 50 percent is conservative and not unprecedented as a probability of achieving an F target like that. I know in particular in Long Island Sound the harvest reduction that we're contemplating here is large with either of those two options. Based on that I would like to offer a motion that Amendment 1 to the Tautog Fishery Management Plan; consider only a 50 percent target of achieving F.

CHAIRMAN NOWALSKY: I think that could be clear by saying in Section 2.7.1, remove Option C, the 70 percent probability.

MR. ALEXANDER: Yes sir that's fine with me.

CHAIRMAN NOWALSKY: A second by that by Jim Gilmore. To be clear for the Board, what that would then also do is that would remove all of the 70 percent reduction options, both recreational and commercial across all the regions from the final document. Let's try to get that up on the board and then we'll have discussion. Do I have any discussion, any hands up for further discussion on it? Okay, I got one hand up. I'll turn to you in just a minute, Joe. Give me just a moment to sidebar. Okay, Joe.

MR. JOE CIMINO: I guess this question would be for maybe Jay or Katie. When we were looking at the reference points and Long Island Sound decided to go with MSY reference points. My recollection was, were they more conservative than the SPR reference points that were being proposed? Do either of you recall?

DR. DREW: For the Long Island Sound the MSY reference points were very slightly less conservative than the SPR. They were almost indistinguishable for Long Island Sound. The big difference was in the Massachusetts, Rhode Island region, and we already picked that option. But for the Long Island Sound region there was practically no difference in terms of the numbers or the reduction that needed to be taken.

CHAIRMAN NOWALSKY: **Okay so the motion that's up on the board, Motion to remove the 70 percent probability of achieving F target throughout the Amendment 1 document. That would again just to be clear, remove Option C from 2.7.1 and then throughout Section 4, remove all of those options;** any further discussion? Okay, I'll give you 15 second to caucus.

Okay times up**. The motion before the Board, all those in favor please raise your right hand. Keep your hands up for another moment. All those opposed, abstentions, null votes, the motion carries by a vote of 7 to 3 to 0 to 0.** Okay so next we'll continue with Ashton's presentation for the remainder of Section 4. I believe your presentation covers all of the additional decision points that might need to be made. Ashton.

MS. HARP: Okay, we will pick up again with the commercial quota. The document doesn't mandate a commercial quota for any of the regions; it just says that a state may consider a commercial quota and it gives procedures within which to do that. There are two different options.

You could have a regional quota, and basically if a quota decision is made moving forward it would involve a regional working group among those states within the region to decide if it is state specific and how are you going to carve out the state specific quota within that larger region?

If it's a regional quota, how are you going to allocate it such that the states gets a certain percentage of it or is it just whenever the quota gets hit then its closed? Those are all decisions that will be made at a future point in time. This document gives a decision making process. The section also includes quota rollovers and quota transfers, and any quota overage.

For the commercial harvest tagging program, Option A is status quo, which is no tagging program. Option B would be to implement a commercial harvest tagging program; whereby all states would have to be included in this program.

De minimis status does not preclude a state from the requirements of the commercial harvest tagging program. It would be a single-use tag. The tag would include the year of issue, the state of issues, and a unique number that would be linked back to the permit holder. States would distribute the tags and the cost for the tags would be whatever the state wanted to decide.

It would be on the onus of them to decide if that would be the harvester bears the cost or the state, and it would be unlawful to sell or purchase commercially caught tautog alive or dead without a commercial tag. There is a Sub-option within the tagging program, and the LEC Subcommittee has had significant discussion on this; which is when do you actually apply the tag to the fish?

Right now there are two options in the document. Option A is harvester application would be at harvest or upon landing. This was seen as a kind of a compromise. The LEC would very much prefer that tautog is tagged immediately upon harvest. This really reduces any loopholes or funny business, as to where the fish goes and when the tags are applied.

When we did commercial interviews with some fishermen, they discussed that there is a stress that occurs with some of these fish when your catching the fish, and they didn't want to tag immediately upon harvesting the fish; because they wanted to make sure the fish stays alive, so they can get the better price for the fish.

This option also allows the harvester to apply the tag upon landing the fish. Option B would be application by the dealer. All commercially caught tautog will be tagged by a licensed dealer. We had a discussion about this. There are a lot more dealers in some cases than harvesters, and not for every state; but in some cases there are a lot more dealers, so this would be possibly a little bit more difficult to implement, so the tag would be applied to the fish immediately after the dealer buys the fish from the harvester.

Then the rest of the commercial harvest, it is a long section. It does go over, you know what the reporting process is like, there would be an annual tag compliance report within there.

When should the tag be given back? If there are extra tags, how should they be given back, so there is kind of a lot of guidance within this commercial harvest tagging program; which is kind of just one lump section to really consider, and there are multiple subsections in there for you guys to review and to make sure that you're comfortable with all of the language in there.

In general there is, I would say for a lot of this document, includes guidance for the states. There is a lot of flexibility for the states to then decide how they want to implement a program. Like right now this doesn't say how the allocation of tags would be implemented. It does say that there is a quota that is presented in this document.

The quota could be used to determine what the cap would be for the tags. The states wouldn't necessarily have to implement the quota, but the quota would be used to derive the commercial tagging cap. We just had a lengthy discussion on spawning closures, so I'm just going to really quickly go through this.

At the regional working groups there was a request for spawning closures to be included in this document, so when the TC prepared all of those options, they already had these very specific spawning closures within it. The Massachusetts, Rhode Island, and New Jersey-New York Bight, tautog fisheries will be closed from June through July.

The Long Island Sound would be closed from May through July, and the DelMarVa region would be closed from May through June. But as was previously mentioned, that there is a request for, it says the spawning closure intended to reduce disruption on tautog pairing, to protect spawning females in perpetuity, meaning that these spawning closures are kind of fixed in time; unless an addendum has been created as Toni went over.

There is one sentence in here that says the measure is not subject to conservation equivalency. We just heard that that is not the preference of the Board, so we can just delete out that sentence. If any state does want to allow fishing during what would be termed a spawning closure, then that can be done.

Those management measures will be brought before the Board, and the Board can decide if they want to move forward with that. It could be done via conservation equivalency.

This conservation equivalency option that is linked to spawning closures will be completely removed from the document, because we've heard that it is the will of the Board. This would be just one less option in the document; it will only be 21 options.

The last part is this is not necessarily an option, but it is something that was discussed at the Law Enforcement Committee earlier this morning; it was that there is, in Addendum 6 there was inclusion of language about states need to really use the term possession when regulating tautog, not the landing of tautog. There was some PDT discussion about possibly including, in federal waters a vessels possession limit is respective to the home port. Jason can chime in here, and there was feedback over what does home port mean? How do you define that?

Do recreational fishermen really have a home port, or is that really more geared at commercial fishermen? Whether or not this one sentence should stay in there, because that's an addition, it's up for debate. It can be removed.

It would be all right within the document, but it could be explicitly stated that if you're fishing in federal waters, whenever you come into land that fish you will need to abide by the possession limit for the state in which you're landing. That is already what fishermen should be doing, but it could just be more explicitly stated that that is what needs to be done.

Some thought does need to be taken when fishing in federal waters, it's not just a free for

all, and then we're not sure where the fish goes when you land. There is a limit on the amount of fish you can take in federal waters, and that is the possession limit of the state waters in which you will land. That can be adjusted.

That is all the options in the document. If you have any questions on the quotas or the commercial harvest tagging program, please let me know.

CHAIRMAN NOWALSKY: We're going to go through this the same way we did the other sections is we'll hit on each of the 4.3 through 4.11 items, take any questions or discussion about those. We'll go back to 4.3, the commercial quota. We've got the two options that are in the document right now; including elements of quota within region, rollover, transfer, and overages; any questions or discussion about that section? Okay seeing none; that will remain as is.

The next item is Section 4.4, which is the commercial harvest tagging program. Option A is status quo of no tagging program. Option B would be to implement a harvest tagging program. Then with there, we've got a handful of other items that would also include the options for tag application as well; so questions, discussion in this section? Dan McKiernan.

MR. DAN McKIERNAN: This is just a subtle issue, but I think the word landing might need to be clarified. If a fisherman brings in a holding car full of tautog, and he puts it over the side of his boat, has he landed it? I look at Jason, and this is always a sensitive issue for when you enforce some rule. I would ask that maybe we clarify that a little bit more if we can. But I don't want to delay this issue or the amendment.

CHAIRMAN NOWALSKY: You would be looking at that clarification in the title of Option A for tag application 4.4.3?

MR. McKIERNAN: Yes that's right. When does one have to tag the fish upon landing?

CHAIRMAN NOWALSKY: LEC is suggesting changing that to offloading; Captain.

CAPTAIN SNELLBAKER: It could be land or it could be offload, but you have to make a choice.

MR. McKIERNAN: No doubt in Massachusetts we'll be enacting our regulations for the Commonwealth, so we'll probably be clarifying it then. But I just want to point out that that is always an area of debate.

CHAIRMAN NOWALSKY: Is there any Board objection to, for 4.4.3 the harvester application option of the tag referencing offloading in lieu of landing? Okay seeing no objection, we'll go that route; Captain.

CAPTAIN SNELLBAKER: I don't know what each individual state's definition of land is. In New Jersey it is enter port. From a New Jersey perspective, I'm okay with land. But not knowing the other definitions for land in the other states, then I would say to answer your question, it would have to be prior to offloading. If you don't have a definition for land, i.e. enter port. I don't know if that needs more discussion or a clarification.

CHAIRMAN NOWALSKY: Does prior to offloading work in our state as well, where we have that definition?

CAPTAIN SNELLBAKER: Either one would work in New Jersey. But I'm not sure about the other states.

CHAIRMAN NOWALSKY: Okay, so I didn't see any objection to prior to offloading, so I think we'll go with that. Okay that brings us to Section 4.5, which has no options in it, 4.6 is spawning closures. What I would suggest we do here is just make this informational; and not actually make these options here. Toni.

MS. KERNS: Adam, from what we said before that we were going to hold onto these, but they could be revised through conservation

equivalency. But if you want to change that then we can do that. Because these are, it's spawning closures that are based on the scientific information that's out there.

We would revise them through conservation equivalency to allow for flexibility in how much percentage that you're capturing during a time period, or if the science shows that there is new spawning closures. But if you don't want us to have them at all then we would just delete the section.

CHAIRMAN NOWALSKY: I guess I'm just wondering, what's the benefit of having it in here as another option, another decision point. I think that is what I'm asking here at this point.

MS. KERNS: Because it's based on the direction that we received from the working groups that were developing the management measures.

CHAIRMAN NOWALSKY: I'll turn to the Board. Our options here are to leave the two options; boy it gets hard when people bring food in front of us here. Our two options are to leave this section as is, but change the first paragraph to remove the line that says this measure is not subject to conservation equivalency. We would just strike that line. Where the other alternative is to just simply turn them into an informational paragraph, and I need direction from the Board about which way they would like to go. I would love to see a hand. Eric Reid.

MR. ERIC REID: I'm good with the informational paragraph.

CHAIRMAN NOWALSKY: Okay, we have a suggestion for informational paragraph. I have another thumbs up, do I have any objection to just making that informational in nature? Okay seeing none, 4.6 will reduce us to 20 decision points in the document; and will become informational in nature. I threw in the towel on some of this. That's great. All right, 4.7 was the last slide Ashton had put up, which referred to possession limit, regulatory language. We've had a lot of discussion over time about complementary measures in federal waters.

We have this line in the document highlighted, in federal waters a vessels possession limit is respective to the home port. That brings up the question of definitions of home port. I believe the Summer Flounder Plan goes into some detail about how this actually works. Let me first turn to staff, to see if they have any thoughts after hearing from Law Enforcement about how best to proceed, and then I'll turn to the Board about concerns about this.

MS. HARP: My initial thought, after the very informative feedback this morning from the Law Enforcement Committee was to strike that sentence from the document, and just reiterate that when you're in federal waters you have to land according to the states restrictions upon which you're landing; that there is some kind of cap that one should acknowledge when in federal waters, but to strike the sentence currently in the document.

CHAIRMAN NOWALSKY: Is there any objection to striking the last sentence from 4.7? Go ahead, Captain.

CAPTAIN SNELLBAKER: Again, I think we all know there is no federal regulations for tautog, which kind of makes enforcement difficult when you go to check a sea bass boat and all of a sudden there is a huge number of undersized black fish, you know laying on the deck of the boat or in a hold, or in a live bag; and there is nothing you can do from an enforcement perspective.

I think the home port issue is really, again reiterating that we do enforce strict possession, so if you're in the EEZ, you may not be in violation of any state regulations, but wherever you come back and there is the regulation that is the regulation that is going to be enforced. To me it's not a home port issue, as much as it is a strict possession issue.

I would also say that as far as home port is concerned, many boats are transient boats. Like I said before, most people will shift to where the regulations are more liberal. You basically have a New Jersey or a New York or a Massachusetts or Rhode Island registration. It doesn't mean that's where you're going to be going back to. Also, as far as on the commercial end, we do have vessels that aren't documented vessels. They don't have a home port; they just have a state registration. To me this is more of an issue of, again strict possession.

MR. REID: Possession in federal waters is a different animal. But of course if the harvester is actually going to be the one that tags the fish, they will have onboard, I would hope the tags of their point of sale. There is a lot of discussion in my mind, in my own head, about how many states tags can you have and all this other stuff, which we can I suppose work through public comment. I think you have to take that line out.

CHAIRMAN NOWALSKY: Peter Burns.

MR. PETER BURNS: Just a question and clarification for my own benefit. I just want to make sure that this would allow state enforcement to enforce possession limits in federal waters; is that correct?

CHAIRMAN NOWALSKY: Well, I think this section just highlights that the enforcement is going to occur where possession is, and couldn't actually occur until that vessel was in some state waters, where some regulation applied. I think the section is highlighting the fact that right now there is no possession limit in federal waters; recreationally or commercially.

When a vessel is inspected in federal waters, no enforcement can occur, because there is nothing to enforce; and enforcement isn't sure where that vessel is going to go back to. I think it's an ongoing issue. I don't think we've clearly fixed it here. But I think it is something that we need to continue to work on moving forward. Follow up.

MR. BURNS: Yes thanks for that clarification. This would not be a recommendation for any complementary federal regulations, as far as this section is concerned.

CHAIRMAN NOWALSKY: I don't believe there is anything in this document that has specifically highlighted that.

MS HARP: One point of clarification. There is a section, it's later on, and it's not an option, because it's just carrying forward language from a previous addendum. It does recommend federal management, and that the federal government applies the minimum size and possession limits in federal waters. That was just a recommendation.

CHAIRMAN NOWALSKY: That was in Section? Give us a minute to find it.

MR. CLARK: It's 4.15.

CHAIRMAN NOWALSKY: Okay, so thank you, so 4.15, recommendations to the Secretary for complementary action in federal jurisdictions. The ASMFC recommends the federal government promulgate all necessary regulations to implement compatible measures in the EEZ. Specifically the Commission recommends that the Secretary fully implement regulations of tautog in the EEZ that are in accordance with state minimum sizes, possession limits, closed seasons and other possession requirements.

Okay, any other questions on that? No objection to removing the last sentence from 4.7, okay. Then the last item we have here is in Section 4.11, we're removing that entire section or we're leaving the paragraph but eliminating the options?

MS. HARP: Yes, we're just eliminating the options. We'll still have a paragraph in there to describe the conservation equivalency for this plan.

CHAIRMAN NOWALSKY: Okay, so let me run down the list of modifications that we've discussed here today. Then I'll have two questions after that. One, throughout Section 2.7.1 we'll use the term initiate, referring to the timeline for management document. Throughout Section 4 in the options that reference status quo, we'll clarify that those are the state specific options with the reductions. In the DelMarVa options, the document was clarified with regards to May and June. We'll remove the spawning closure references there, or labeling them as such. In 4.4.3 we'll change the term landing to prior to offloading. Section 4.6 will become informational in nature without an option, 4.7 will remove the last seconds, and 4.11 will become an informational paragraph without an option.

Those are the list of changes that I have. The two questions that I have is first, I'll turn to Mark from Connecticut, with the – oh and then we also went ahead and moved to remove all of the 70 percent reduction options. Let me first turn to Connecticut, moving to remove those 70 percent options. Does that eliminate your need for any other measures to be evaluated by the TC, and inserted in the document before you would vote for it going out to public comment?

MR. ALEXANDER: No, I wish to explore the possibility of a smaller minimum size in the commercial fishery under a tagging program.

CHAIRMAN NOWALSKY: I think I heard that analysis could be done, but without a doubt that would certainly delay this to at least the next meeting. Do we have some level of confidence that we could get that analysis for our next board meeting?

MR. ALEXANDER: Katie, is that something that could be considered under conservation equivalency?

CHAIRMAN NOWALSKY: Toni would like to jump in on that.

MS. KERNS: I think Katie wants to add something after I'm done. But I think that if we can work with Jarred to do the analysis, to make it feasible. It potentially could impact both the commercial and recreational, because I'm assuming we're holding the 50/50 percent, 50 percent reduction to the commercial, 50 percent reduction to the recreational.

You're just asking for in that sense, but maybe Katie can clear that up for me. If we can get Jarred to do the analysis relatively quickly, then we can just add it as an additional option in the document. However long it takes him to do that analysis, if it doesn't delay into our timeframe that we have.

You know there are very specific timeframes that we have to have the document out before it goes out for public comment. If that fits into the schedule still, then we can bring you public comment back at the August meeting. If it doesn't fit into the schedule, from how much time it takes him then it would delay us.

DR. DREW: Also, I would want to clarify. Is this only for the Long Island Sound region, or are other states interested in our other regions, would want to see that lower size limit? I mean I don't really want to open up that can of worms, but I also don't want to get here to be like, well why did they get a 12-inch minimum size and we have to do a 16-inch minimum size.

MR. ALEXANDER: I guess I did open a can of worms. My interest was only for Long Island Sound. I'm not even sure that New York is interested in it yet. I would like to proceed with this in the most expeditious and simplest manner though. I mean if it's something that we could develop on our own as a conservation equivalent to the commercial option that's been submitted already, then there is no need to prolong the publication of the amendment.

CHAIRMAN NOWALSKY: Okay, so let me jump to my second question. The Connecticut issue notwithstanding, all of the other changes we

talked about could be made in a timely enough manner. Maybe just send the document around to everybody for 48 hours, or maybe not even necessary. I can review it and it could go out.

MS. KERNS: That's correct, and I think if Mark wants to do conservation equivalency and he works it out with New York, because it is a regional approach, then we can do that.

CHAIRMAN NOWALSKY: Okay, so with the Connecticut issue, what I'm hearing is two potential paths forward. One, that this Board would either have to agree by consensus without objection, to have the additional item put in the document; and it couldn't be done by consensus. We're not without objection, then we would need a motion from Connecticut, a second and be voted on; or what I'm hearing the second path is that that option could be forward in the future, for Connecticut's commercial fishery under conservation equivalency. How am I doing?

MS. KERNS: Good.

CHAIRMAN NOWALSKY: Mark.

MR. ALEXANDER: Mr. Chairman, I'll proceed with your second option there, to make things simple.

CHAIRMAN NOWALSKY: Okay, so we've got recorded discussion of that and that option would be considered, looked at under conservation equivalency, and wouldn't need further Board action as an inclusion in the document. Okay, so at this point is there any other discussion on the document? Seeing none**; what I would need is a motion to release the document for public comment, with the changes made here today. I have a hand up from Emerson Hasbrouck**.

Do I have a second? John Clark. Okay while we're getting the maker and seconder up. I would just ask that you reflect that motion to include with the changes made here today. I'll quickly just ask, is there any public comment on this motion? Seeing none; I'll come back to the Board. You have five seconds to caucus.

Okay, is there any objection to the motion? Okay, I've got an objection, so given an objection I'm going to go ahead and ask for a show of hands then as a vote. **All those in favor of the motion to approve Draft Amendment 1 for public comment as amended today, please raise your right hand, all those opposed, abstentions, null votes; motion passes 7 to 0 to 2 to 1.**

One more digit and we'd have a zip code. Okay, are there any other items to come before the Board today? All right, thank you everyone. Again, I have to extend a great deal of amount of thanks to staff fort their work on this. I'll also ask do you want to see a show of hands for states that want public hearings? No, not needed. I'm sure that will get addressed.

ADJOURNMENT

CHAIRMAN NOWALSKY: All right, having concluded the business of the agenda, we stand adjourned. Thank you everybody.

(Whereupon the meeting adjourned at 1:12 p.m. on May 9, 2017.)

Atlantic States Marine Fisheries Commission

DRAFT AMENDMENT 1 TO THE INTERSTATE FISHERY MANAGEMENT PLAN FOR TAUTOG FOR PUBLIC COMMENT

ASMFC Vision: Sustainably Managing Atlantic Coastal Fisheries

Atlantic States Marine Fisheries Commission Seeks Your Input on Tautog Management

The public is encouraged to submit comments regarding this document during the public comment period. Comments will be accepted until **July 14, 2017.** Regardless of when they were sent, comments received after that time will not be included in the official record.

You may submit public comment in one or more of the following ways:

1. Attend public hearings held in your state or jurisdiction.
2. Refer comments to your state's members on the Tautog Management Board or Tautog Advisory Panel, if applicable.
3. Mail, fax, or email written comments to the following address:

Ashton Harp
1050 North Highland St., Suite 200 A-N
Arlington, VA 22201
Fax: (703) 842-0741
aharp@asmfc.org (subject line: Tautog Draft Amendment I)

If you have any questions please call Ashton Harp at 703.842.0740.

Draft Amendment 1 Timeline

Winter 2015	Board Reviews the 2015 Benchmark Stock Assessment that Evaluates Stock Status Across Three Regions
Fall 2015	Board Solicits Public Comment on a Public Information Document (PID)
November 2015	Board Reviews PID Comments and Tasks Plan Development Team (PDT) to Develop Draft Amendment I
Spring 2016	Board Tasks Technical Committee to Develop a Regional Assessment to Evaluate Stock Status Across Two Additional Regions
August 2016	Board Reviews Regional Assessment and Tasks TC to Develop a Four-Region 2016 Stock Assessment Update that Includes Data through 2015
Winter 2016/17	Board Tasks TC and PDT to Develop Management Measures for Each Region Respective to Regional Stock Status
May 2017	Board Reviews Draft Amendment 1 and Considers Approval for Public Comment
June/July 2017	Board Solicits Public Comment on Draft Amendment 1 and States Conduct Public Hearings
August 2017	**Board Reviews Public Comment, Selects Management Options and the Commission Considers Final Approval of Amendment I**

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1.0 INTRODUCTION

The Atlantic States Marine Fisheries Commission (ASMFC) is responsible for managing Tautog (*Tautoga onitis*), under the authority of the Atlantic Coastal Fisheries Cooperative Management Act (ACFMA). The management unit consists of the coastal states from Massachusetts through Virginia. ASMFC has coordinated interstate management of tautog in state waters (0-3 miles) since 1996. Responsibility for compatible management action in the Exclusive Economic Zone (EEZ) from 3-200 miles from shore lies with the Secretary of Commerce through ACFCMA in the absence of a federal fishery management plan. If approved, Amendment 1 would consolidate the fishery management plan (FMP), subsequent addenda (Addendum I-VI) and new management measures into a single document.

1.1 STATEMENT OF THE PROBLEM

Since the Tautog FMP was implemented, in 1996, the resource has experienced changes in stock status, as well as management measures used to control harvest. Based on the 2015 Benchmark Stock Assessment and Peer Review Report (2015 assessment), tautog is overfished and overfishing is occurring on a coastwide scale.

The 2015 assessment suggested the delineation of separate, regional stock units as management areas to reduce the risk of overfishing and account for tautog's very limited coastwide movement. It explored multiple regional definitions for management purposes, including a three-region delineation of Massachusetts-Rhode Island-Connecticut, New York-New Jersey, and Delaware-Maryland-Virginia. The Tautog Management Board (Board) accepted the 2015 assessment for management use, but expressed concern with the proposed three-region stock delineation that would split Long Island Sound (LIS) into two assessment and management areas. This was seen as an issue because recent landings indicate a concentration of the effort in the LIS and fishermen from Connecticut and New York routinely cross states lines when fishing.

Therefore the Board requested a new regional assessment that would examine the population dynamics in Connecticut-New York-New Jersey in more detail. This regional assessment proposed two additional stock unit boundaries for consideration at a finer regional scale: Long Island Sound (LIS), which consists of Connecticut and New York waters north of Long Island, and New Jersey-New York Bight (NJ-NYB), which consists of New Jersey and New York waters south of Long Island. The Board approved the regional assessment for management use and selected a four-region management approach (Table 13) for inclusion in Draft Amendment 1.

Draft Amendment 1 updates the 1996 FMP with new fishery management principles and consolidates associated addenda into a single document. The document proposes regional management for tautog to address overfishing and overfished stock status present in some regions. In addition, a commercial harvest tagging program is proposed to address an illegal, unreported and undocumented fishery that has persisted for more than a decade. If approved,

Draft Amendment 1 would be the comprehensive management document for tautog management in state waters.

1.2 BENEFITS OF IMPLEMENTATION

Unlike previous assessments, which assessed the stock on a coastwide basis, the 2015 benchmark stock assessment and 2016 regional assessment evaluated stock status regionally to reflect differences in life history characteristics and harvest patterns. Regional management of the species has been suggested since the onset of management, however the tools and data to run a regional stock assessment to determine regional stock status were not available until recently. The 2015 benchmark stock assessment peer review panel, 2016 regional assessment peer review panel and tautog technical committee consider the regional assessments to be a significant advancement from prior assessments.

The regional stock unit definitions are based on localized biological and socioeconomic trends, which allow managers to better address the management needs of each region. Evaluating stock status by regions allows managers to develop targeted management measures that restrict effort only where necessary. Whereas a coastwide assessment and management measures, required the entire coastwide fishery to take reductions regardless of where fishing effort was highest. Regional management is expected to have a positive impact on the resource and fishery.

1.2 DESCRIPTION OF THE RESOURCE

Tautog, a member of the wrasse (*Labridae*) family, is a stout fish with an arched head, large lips broad tail and a lack of scales on the gill covers. They are regionally referred to as blackfish, in reference to its common overall coloration. Juveniles and females more often exhibit a mottled and brown toned appearance, while males are most often grayish in color. Adults can live more than thirty years and stay close to a preferred home site moving only short distances longitudinally, if at all, during seasonal migrations. A sedentary life history and aggregation around structure makes tautog relatively easy to catch, even when biomass levels are low. Catchability and slow growth rate make tautog highly susceptible to overfishing and slow to rebuild.

1.2.1 Species Life History

1.2.1.1 Distribution

Tautog are distributed along the northeast Atlantic coast of North America (Figure 1) from the outer coast of Nova Scotia to Georgia (Collette and Klein-MacPhee 2002, Parker et al. 1994); although, most abundant from Cape Cod to Cape Hatteras (Bigelow and Schroeder 1953). They inhabit coastal and estuarine waters throughout this range. North of Cape Cod, they are usually found within 4 miles of shore in waters less than 60 feet deep (Bigelow and Schroeder 1953). South of Cape Cod, they can be found up to 40 miles offshore and at depths up to 120 feet (Hostetter and Munroe 1993).

Figure 1. Tautog Distribution

1.2.1.2 Life History Stages

Eggs and larvae have been collected on the inner continental shelf and within estuaries from May through August (Berrien et al. 1978, Colton et al. 1979, Ferraro 1980, Bourne and Govoni 1988, Monteleone 1992, Able and Fahay 1998, Witting et al. 1999). Viable eggs are 1 millimeter (mm) in diameter, buoyant and are found in the greatest numbers at the water surface. Hatching occurs in 81 hours at 15°C and 42 hours at 20°C (Auster 1989, Perry 1994). The larvae (2 mm at hatching) stay near the surface during the day and may go deeper at night (Malchoff 1993). After approximately 3 weeks, larvae undergo metamorphosis and settle out of the water column as juveniles (Sogard et al. 1992, Dorf 1994).

As juveniles, tautog begin a bottom dwelling (demersal) existence that continues for the remainder of their lives. Newly settled juveniles look similar to miniature adults and assume the color (green to mottled or striped brown) of the habitat they occupy. It is unknown if tautog

larvae settle out of the water column in offshore locations or if small juvenile tautog are found in offshore habitats.

Tautog are attracted to some type of structure in all post larval stages of their life cycle. These habitats include both natural and man-made structures, such as submerged vegetation, shellfish beds, rocks, pilings, jetties, shipwrecks and artificial reefs (Olla et al. 1974, Briggs 1975, Briggs and O'Connor 1971, Orth and Heck 1980, Sogard and Able 1991, Dorf and Powell 1997, Steimle and Shaheen 1999). Juvenile tautog are found in estuaries and bays where newly settled individuals are reported to prefer areas less than 1 meter (m) deep (Sogard et al. 1992, Dorf and Powell 1997), and vegetated areas to unvegetated regions. Vegetation can include sea grass and various types of macroalgae (Briggs and O'Connor 1971, Sogard et al. 1992). With growth, these young-of-the-year move to deeper waters but are not usually found deeper than around 25 feet (Cooper 1964).

Larger juveniles become associated with various reef-like habitats and hard surfaces as long as the main habitat requirement of shelter is met. Young tautog may establish home sites, ranging within a few feet during the day and returning at night when they become dormant (Olla et al, 1979). Dixon (1994) found juvenile tautog showed a size-specific preference when choosing a shelter. Juvenile tautog remain inshore during the winter (Cooper 1964, Stolgitis 1970, Olla et al. 1974). When water temperatures drop below 4.5°C some large juveniles may move to deeper, more protected locations. Juveniles remaining inshore in shallow water can be found in a variety of shelters including grass and macroalgal beds, shells, discarded soda cans and bottles, fish pots, crevices and bottom depressions covered with silt (Cooper 1964, Olla et al. 1978, Olla et al. 1980). By the end of their first year juveniles reach a length of around 60 mm in Rhode Island waters (Cooper 1967) and 140 mm in Virginia waters (Hostetter and Munroe 1993).

During summer months, adult tautog are found in both inshore embayments and coastal waters in habitats similar to those of large juveniles (Cooper 1966, Briggs 1969, Briggs 1977, Steimle and Shaheen 1999, Arendt et al. 2001). They can be found in a variety of complex, structured locations including vegetation, rocks, natural and artificial reefs, pilings, jetties and groins, mussel and oyster beds, shipwrecks, submerged trees, logs and timbers (Steimle and Shaheen, 1999). Tautog exhibit diurnal activity and enter a torpid state at night during which they seek refuge in some type of structure. Adults stay relatively close to their preferred home site and, while moving away during the day to feed, they return to the same general location at night where they become dormant (Olla et al. 1974).

The mouths of estuaries as well as other inlets and artificial reefs may be extremely important habitats for tautog (Zawacki 1969, Briggs 1975), particularly south of Long Island where there are fewer natural rocky outcrops to provide shelter than in the more northern portion of the range. Localized populations form during the summer, in co-existence with large juveniles (Olla et al. 1974).

1.2.1.3 Age and Growth

Larval growth rates have been estimated to be between 0.25 - 0.76 mm per day (Malchoff 1993, Dorf 1994). During summer, young-of-the-year juveniles grow around 0.5 mm per day (Sogard et al. 1992, Dorf 1994). The size attained at the end of the first year increases along the coast from north to south. Since juvenile daily growth rates appear to be similar in all areas during the summer, size differences may be due to the longer duration of warmer water temperatures in southern portions of the species range (Sogard et al. 1992, Dorf 1994). Juvenile growth rates have been observed to be higher in vegetated than in unvegetated habitats. Among vegetated habitats, juvenile growth was higher in sea lettuce beds than in eelgrass beds in New Jersey (Sogard et al 1992).

Adult male tautog grow faster in length than adult females (Cooper 1967, Simpson 1989, Hostetter and Munroe 1993). In Rhode Island waters (Cooper 1967), the mean length of a seven year old male was 358 mm (14.1 inches), while a female was 335 mm (13.2 inches). Faster adult male growth has also been documented in Long Island Sound (Simpson 1989) and Virginia waters (Hostetter and Munroe 1993). Adult growth is relatively slow and varies with the season. Slowest body growth rates occur during maturation of the gonads in the spring prior to spawning. Maximum body growth occurs after spawning during the summer and fall followed by a period of slow or no winter growth associated with reduced water temperatures and feeding activity during the torpid period (Hostetter and Munroe 1993).

Mean adult growth rates are similar for tautog in northern and southern waters until the age of 13. After that age, growth rates decrease more rapidly in the northern part of the species range, with growth rates in Virginia being almost double those of tautog in Rhode Island waters (Hostetter and Munroe 1993). In Rhode Island, male annual growth rates were reduced to less than 12 mm (0.5 inches) per year after age 12 and to 2–4 mm per year after age 20. For females, annual growth decreased to less than 10 mm per year after age 13 and to 3–4 mm per year after age 17 (Cooper 1967) Tautog are long-lived fish with males living longer than 30 years and females around 25 years (Cooper 1966, Hostetter and Munroe 1993). Fish as old as 30 years have been caught in Rhode Island, Connecticut, and Virginia, but the majority of fish caught are four to eight years old.

As stated above, many variables may affect the observed length of an individual tautog at a given age. Age-length keys show significant overlap of age groups by length. On average, Table 1 provides a reasonably accurate guide.

Table 1. Tautog length-at-age relationship

Length (Inches)	Age (Years)
3	1
5.5	2
9	3
10.5	4
12.5	5
14	6
15.5	7
17	8
18	9
19	10
21	15
22	20

1.2.1.4 Spawning

Adult tautog generally migrate inshore in the spring from offshore wintering locations to spawn in April through July (Chenoweth 1963, Cooper 1966, Stolgitis 1970, Olla et al. 1974, Hostetter and Munroe 1993, White et al. 2003). Spawning usually occurs within estuaries or in nearshore marine waters (Chenoweth 1963, Sogard et al. 1992, Hostetter and Munroe 1993, White et al. 2003).

Surveys and tagging data suggest tautog spawn seasonally at specific locations. In Rhode Island, tagging studies showed that adults returned to the same spawning locations over a period of several years (Cooper 1966, Lynch 1991) and spawn in discrete groups in May and June (Cooper 1964, 1967). Studies in New York waters suggest adults from different populations may mix at specific spawning locations from year to year (Olla et al. 1980). Tautog collected from offshore hard bottom sites in Maryland and Virginia were found to be in spawning condition seasonally (Eklund and Targett 1990, Hostetter and Munroe 1993).

Some adults remain offshore throughout the year, particularly in the southern part of the range (Olla and Samet 1977, Eklund and Targett 1990, Adams 1993, Hostetter and Munroe 1993). Eggs and larvae collected in continental shelf waters from Georges Bank to North Carolina, with especially high concentrations off of southern New England and New York, suggest tautog spawn offshore as well as inshore locations (Ferraro 1980, Sogard et al. 1992, Hostetter and Munroe 1993, White et al. 2003). Tautog have been found in spawning condition 12 miles off the coast of Virginia in 60 feet of water (White et al. 2003).

1.2.1.5 Reproduction

Tautog normally reach sexual maturity at 3 to 4 years of age and 177 to 304 mm in length (7 to 12 inches), although there are some sexually mature 2 year old fish (Chenoweth 1963, Olla and Samet 1977, Hostetter and Munroe 1993). Tautog in Rhode Island waters reach sexual maturity

at a smaller size of 190 to 200 mm (7.5 - 7.9 inches, Cooper 1966) than in New York at 215 to 241 mm (8.5 - 9.5 inches, Briggs 1977) or Chesapeake Bay waters at 271 to 289 mm (10.7 - 11.4 inches, Hostetter and Munroe 1993). The difference in size is likely related to the length of time which the water remains warm and growth occurs (Hostetter and Munroe 1993).

Spawning occurs in heterosexual pairs or in groups of a single female with several males. In laboratory studies, the type of spawning depends on the number of mates available for the female, the male dominance hierarchy, and the availability of shelter and food. Pair spawning is usually the dominant process (Olla and Samet 1977).

Spawning begins in the spring when water temperatures reach at least 9° C. Peak spawning varies annually with temperature. Generally spawning reaches peak in June, and continues throughout the summer (Bigelow and Schroeder 1953, Cooper 1964, Colton et al. 1979, Eklund and Targett 1990, Sogard et aL 1992, Hostetter and Munroe 1993). Chenoweth (1963) reported peak spawning in Narragansett Bay during the first two weeks of June 1961 and the last two weeks of May 1962, when average water temperatures were 13-14°C. Malchoff (1993) reported peak spawning in the New York Bight during July 1988. In Maryland and Virginia, reported peak spawning is between April and June (Eklund and Targett 1990, Hostetter and Munroe 1993, White et al. 2003). GSI off the south shore of New York has been found to peak in mid-June to mid-July when temperatures reached 11-12°C (Dumais 2005).

Tautog are batch spawners with a prolonged spawning season (White et al. 2003, Dumais 2005, LaPlante and Schultz 2007). Batch fecundity varies with female size (Chenoweth 1963, White et al 2003, Dumais 2005, LaPlante and Schultz 2007). In Rhode Island waters, estimates of batch fecundity for tautog between 200-685 mm were 5,000 to 637,500 mature eggs. (Chenoweth 1963). Similar results were found in Long Island Sound with batch fecundity for females 250 – 600 mm estimated between 8,000 and 600,000 eggs (LaPlante and Schultz 2007). Off the south shore of Long Island, batch fecundity for females 213 – 455 mm was estimated as 778 to 69,500 eggs (Dumais 2005). Batch fecundity in Virginia was estimated to be between 2,800 and 181,200 eggs for females 259 - 516 mm.

Larger females were found to spawn more frequently than smaller females and have a longer spawning season (LaPlante and Schultz 2007). During the peak part of the season, larger females were found to spawn almost daily (White et al. 2003, LaPlante and Schultz 2007).

Total annual fecundity has been found to vary yearly as well as with fish size (LaPlante and Schultz 2007, White et al 2003). Estimates of annual fecundity were higher in Long Island Sound (LaPlante and Schultz 2007) than those reported for Virginia waters (White et al. 2003). In Long Island Sound, female tautog in the 500 mm size range produced around 26 to 55 million eggs where as a female in the 250 mm size range produced 0.6 to 1 million eggs. In Virginia, annual fecundity ranged from 160,000 eggs to 10 million eggs for females 259 mm and 511 mm respectively.

1.2.1.6 Migration

Tautog typically migrate offshore when water temperatures drop below approximately 50°F in the late fall. Migration behavior includes schooling to rugged bottom topography 80-150 feet deep. Tautog do not appear to make extensive long-shore migrations, although some fish from Long Island bays have been reported to overwinter in New Jersey coastal waters (Briggs 1977).

Seasonal migration is not uniformly exhibited. Some adults remain inshore and active throughout the year, particularly in the southern portion of the range (Auster 1989, Eklund and Targett 1991, Adams 1993, Hostetter and Munroe 1993, Arendt et al. 2001). Juvenile tautog have been collected in Maryland's Coastal Bays submerged aquatic vegetation (SAV) in September (Doctor et al 2015), and spawning tautog have been collected on artificial reefs near Ocean City in May. In Maryland and Virginia, populations of adults have been observed 12 - 40 miles offshore in 30 - 225 feet of water throughout the year (Eklund and Targett 1990, Hostetter and Munroe 1993). Offshore distributions decline toward the northern part of the species range (Chesapeake Bay Program 1994).

When water temperatures are very low, adults become torpid (Cooper 1966, Briggs 1977). This may allow tautog, a member of a mostly tropical family, to survive cold winter conditions in northern regions (Curran 1992). Suboptimal conditions (i.e., high water temperature, decline in mussel abundance) will cause adult and large juvenile tautog to leave an area (Olla et al. 1979, Adams 1993, Steimle and Shaheen 1999).

1.2.1.7 Feeding

Juvenile tautog feed primarily on small benthic and pelagic invertebrates including copepods, amphipods, isopods, ostracods, polychaetes, crabs and mussels (Olla et al. 1975, Festa 1979, Grover 1982, Sogard et al. 1992, Dorf 1994). The composition of the juvenile diet changes with fish size. In Narragansett Bay, Rhode Island, small young-of-the-year (20 - 50 mm total length) primarily consumed amphipods and copepods. Juveniles 50 - 68 mm in length consumed a variety of invertebrates. The largest young-of-the-year (68 - 99 mm) ate mainly small shrimp and crabs (Dorf 1994). Similar diets were reported in New Jersey (Festa 1979, Sogard et al. 1992), Chesapeake Bay (Orth and Heck 1980) and Connecticut waters (Clark et al. 2006). In New York waters, juveniles 104 - 205 mm in length fed primarily on blue mussels *(Mytilus edulis)* throughout the year (Olla et al. 1975). Larger juveniles (200 - 320 mm) in New Jersey were observed to feed on xanthid crabs (Festa 1979).

Adult tautog feed primarily on the blue mussel and other shellfish throughout the year. The diet can be extremely varied depending on location and availability. The following items have been found in the diets of adult tautog: hydroids, barnacles, various crabs, sand dollars, amphipods, isopods, polychaete worms, shrimp, lobster, periwinkles, jingle shells, scallops, soft shell clams and razor clams (Bigelow and Schroeder 1953, Olla et al. 1974, Steimle and Ogren 1982, Auster 1989, Dumais 2005).

Tautog have been found to select a limited size range of blue mussels as prey (Lankford 1999) which is 45-50% smaller than the size mussel the fish is capable of ingesting. Adults grasp

mussels using their large canine teeth, tearing them from the surrounding surface by shaking their heads. Small mussels are swallowed whole, while larger, hard-shelled ones are crushed by the pharyngeal teeth prior to swallowing. The canine teeth are not used for crushing shells (Olla et al. 1974).

Tautog are visual predators and therefore, do not feed at night (Olla et al. 1974, Deacutis 1982). Tautog leave their home sites and begin actively searching for food at dawn (Briggs 1969, Olla et al. 1974, 1975). Generally venturing up to 1,500 feet away, although there have been reports of tautog traveling as far away as 10 kilometers from their home site (Olla et al. 1974, Arendt et al. 2001). Tautog have been observed to follow an incoming tide above low water levels to feed on concentrations of mussels in the intertidal, returning to deep water as the tide ebbs (Bigelow and Schroeder 1953). Most fish move to areas with large concentrations of mussels during the day and return to their home site at evening twilight (Olla et al. 1974). Food intake may be reduced due to high water temperatures (Olla et al. 1978), low winter temperatures (Cooper 1966), and during spawning (Bridges and Fahay 1968).

Tautog's high dependence on blue mussels creates an important trophic link influencing distribution, behavior, and perhaps, growth and survival. Periodic recruitment failure of mussels in tautog habitat can cause tautog to move to other feeding areas (Steimle and Shaheen, 1999). If they do not move, or the failure is widespread, tautog inhabiting the area may suffer some effects of an inadequate diet. Heavy consumption of mussels can cause a depletion of this food source before new prey recruitment occurs, especially if tautog are concentrated in an area for some climatological, water quality, or behavioral reason.

1.2.2 Stock Assessment Summary

The first tautog stock assessment was performed in 1995 using the ADAPT virtual population analysis (VPA) model (available through NMFS NEFSC toolbox, http://nft.nefsc.noaa.gov/). In order to incorporate perceived regional differences in biology and fishery characteristics throughout the range of the species, the Technical Committee (TC) attempted separate regional models for northern (Massachusetts to New York) and southern (New Jersey to Virginia) states. The assessment underwent peer review through the NMFS NEFSC Stock Assessment Workshop/Stock Assessment Review Committee (SAW/SARC) process. Although the assessment was not accepted by the peer review panel, the resulting fishing mortality estimate from the assessment was incorporated into the initial FMP (ASMFC 1996).

The next benchmark stock assessment, performed in 1999, was also conducted using the ADAPT VPA. The regional approach was used for data consolidation, application of age keys, and preliminary VPA runs of the model. Unfortunately, results for the southern region were unreliable. The preferred run, therefore, was based on catch at age (CAA) developed separately for north (MA-NY) and south (NJ-VA) regions and combined for a total coastwide CAA. The assessment derived coastwide estimates of F, spawning stock biomass, and recruitment. In addition, tag based survival estimates were included in the assessment as corroborative

evidence. A peer review of the model through the SAW/SARC process determined the model was suitable for management purposes. That assessment indicated the terminal F rate had dropped to 0.29, which was attributed to increases in minimum size required in the original FMP. This terminal F was close to the interim FMP target of 0.24, but well above the final plan target of F = 0.15.

A stock assessment update conducted in 2002 using the methods from the 1999 assessment found that recreational catch rates had returned to levels observed prior to the minimum size limit increase, and F had increased to F = 0.41. The Board responded by implementing reductions in recreational harvest in 2003, in an attempt to return F to the FMP target value. The target was revised to $F_{SSB\ 40\%}$ = 0.29 by Addendum III (ASMFC 2002), based upon updated recruitment and weight at age parameters and a desire to adopt a target with more management flexibility.

A benchmark stock assessment conducted and peer-reviewed in 2005 (ASMFC 2006) continued the use of the coastwide ADAPT VPA model based on separate regional (north/south) CAA. The assessment indicated the coastwide population of tautog had declined about four-fold from 1982 to 1996 and had then remained relatively stable through the terminal year. The stock was considered overfished and overfishing was occurring with a 2003 coastwide fishing mortality estimate of F=0.299. In response to concerns from the Management Board and TC regarding the utility of a coastwide model on a mostly sedentary species, the 2006 assessment also presented results of state-specific assessments (primarily catch curves) of local tautog populations. The peer review panel generally agreed local or regional methods were more appropriate given the life history of the species, but expressed reservations about the paucity of data available at small regional scales and the use of catch curves for management purposes. The panel approved the coastwide model for use in management, encouraging further development and refinement of more localized models for future use (ASMFC 2006).

A “turn of the crank” update assessment was completed in 2011 using the same methodology as the 2006 assessment, with data through 2009. Fishing mortality was estimated as F = 0.23 in 2009, with the three-year average F = 0.31. Both estimates were above the Addendum IV target of F_{target} = 0.20. SSB was estimated to be 10,663 MT in 2009, well below Addendum IV’s target of 26,800 MT and threshold of 20,100 MT. Therefore, the 2011 stock assessment update concluded tautog was overfished and experiencing overfishing.

A benchmark stock assessment was completed and peer-reviewed in 2014 (ASMFC 2015). The assessment was conducted at a regional level. The TC used life history information, tagging data, fishery characteristics, and data availability considerations to split the coastwide population into three regions. Each region was assessed independently using the statistical catch-at-age model ASAP. All three regions were found to be overfished, with overfishing occurring in two regions (Massachusetts-Rhode Island and Connecticut-New York-New Jersey).

While the three-region approach in the benchmark stock assessment was applicable, there was interest in assessing and managing the Long Island Sound as a discrete area. A regional stock

assessment was completed and peer-reviewed in 2016 (ASMFC 2016a). This regional assessment analyzed two additional regions (Long Island Sound and New Jersey-New York Bight) to comprise a four-region management scenario. The Long Island Sound (LIS) region includes harvest in Connecticut and New York LIS. The New Jersey-New York Bight (NJ-NYB) region includes harvest in New York's south shore and New Jersey. The two regions were found to be overfished and overfishing was occurring.

In 2016, the Board reviewed stock status across the three and four region management scenarios, ultimately electing to separate management into four regions. A four region stock assessment update was conducted using data through 2015 (ASMFC 2016b). The assessment estimated the maximum level of harvest (per region) in order to achieve the F target for each region by 2021 (Table 2). Spawning potential ratio (SPR) based reference points were utilized for all regions, except LIS, which used maximum sustainable yield (MSY) based reference points (See Section 2.5).

Table 2. 2013-2015 Average Landings Compared to the Proposed Maximum Removals by Region when Applying a 50% Probability of Achieving F Target in 2021. Parenthesis indicates the necessary harvest reduction to achieve the associated level of harvest. (ASMFC 2016b)

Region	Status quo (mt) 3 yr avg: 2013-2015	50% Probability of Achieving F Target (mt)
Massachusetts-Rhode Island	390	-
Long Island Sound	500	264 (-47%)
New Jersey-New York Bight	461	450 (-2)
Delaware-Maryland-Virginia	77	-

1.2.2.1 Massachusetts-Rhode Island

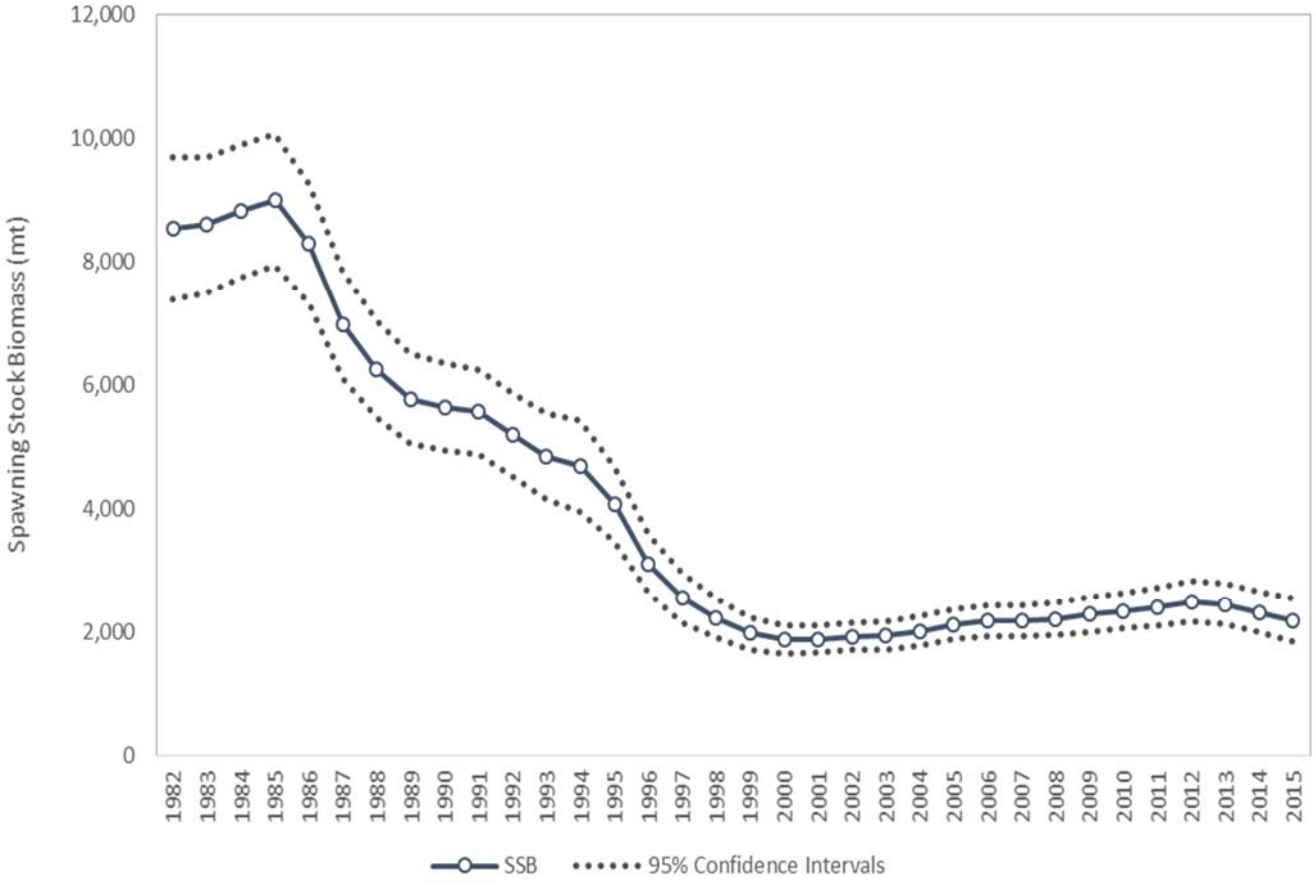
The 2016 stock assessment update indicates the Massachusetts – Rhode Island (MARI) stock is not overfished and overfishing is not occurring.

Fishing Mortality: For SPR estimates, the 3-year average value of F_{3yr} = 0.23 was below both F_{Target} = 0.28 and $F_{threshold}$ = 0.49, this stock is not experiencing overfishing and the fishing mortality rate is below the target.

Figure 2. Fishing mortality estimates for the MARI region.

Spawning Stock Biomass: For SPR estimates, the point estimate of SSB_{2015} = 2,196 mt is below the SSB_{Target} = 2,684 mt but is above the $SSB_{threshold}$ = 2,004 mt, indicating the stock is not overfished but is not yet rebuilt to the SSB target. Total abundance and spawning stock biomass declined rapidly from 1982 until 2000. Spawning stock biomass decreased from 8,994 mt in 1985 to the current estimate of 2,196 mt in 2015.

Figure 3. Spawning stock biomass estimates for the MARI region.



Recruitment: Recruitment was generally highest in the early years of the time-series, with a couple of average recruitment years in the mid-2000s. Observed recruitment has increased from time series lows during the 2013 – 2015 period, but remain below average in general.

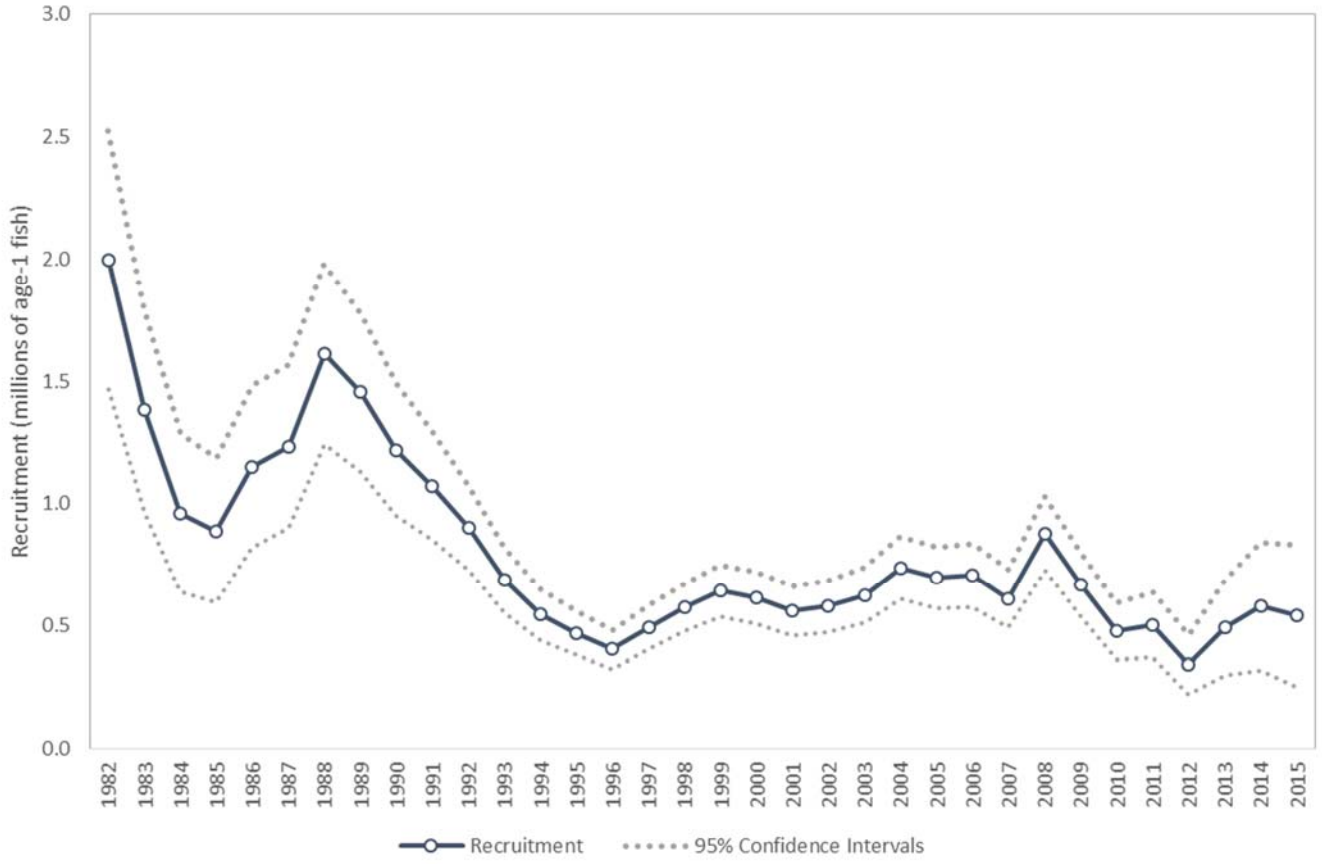


Figure 4. Recruitment estimates for the MARI region.

Abundance: Total abundance and spawning stock biomass declined rapidly from 1982 until 2000. Despite a period of slightly increased abundance in the early to mid-2000s, the overall trend has been flat from 2000 until 2015. Total abundance declined from a high of 10.9 million fish to the current estimate of 2.8 million fish in 2015.

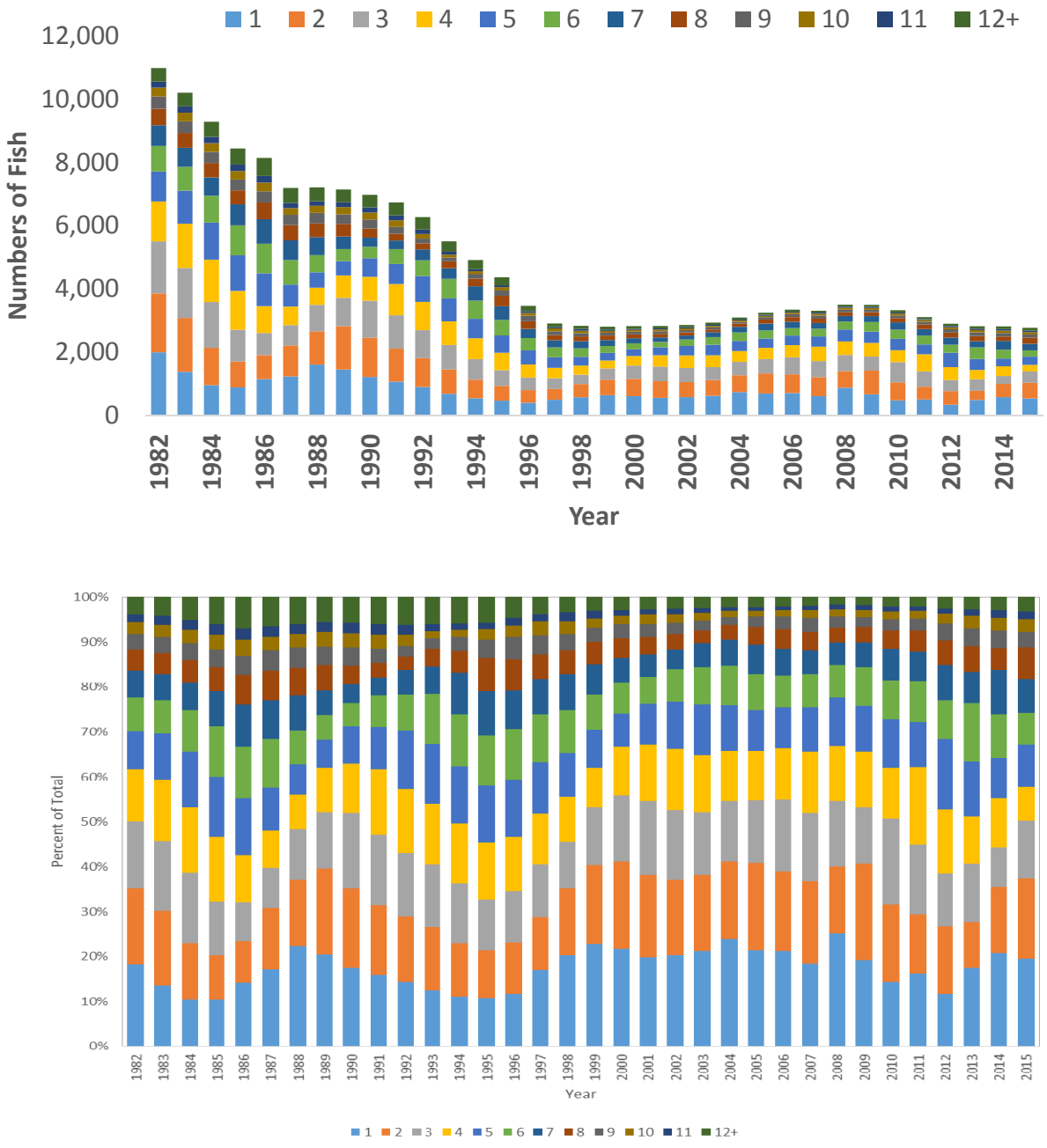


Figure 5. The top graph is the abundance at age for the MARI region in total numbers of fish. The bottom graph illustrates the data in terms of the overall percentage of fish at age within each year.

1.2.2.2 Long Island Sound

The 2016 stock assessment update indicates the LIS stock is overfished and overfishing is occurring.

Fishing Mortality: F_{target} is defined as F_{MSY} and $F_{threshold}$ is defined as the F rate that would maintain the population at 75%SSB_{MSY}. F_{target} for LIS was 0.28 and $F_{threshold}$ was 0.49. In 2013-2015, F ranged from 0.35 to 0.59. The 3 year-average estimates of F (F_{3yr} = 0.51) exceeded the MSY target and threshold.

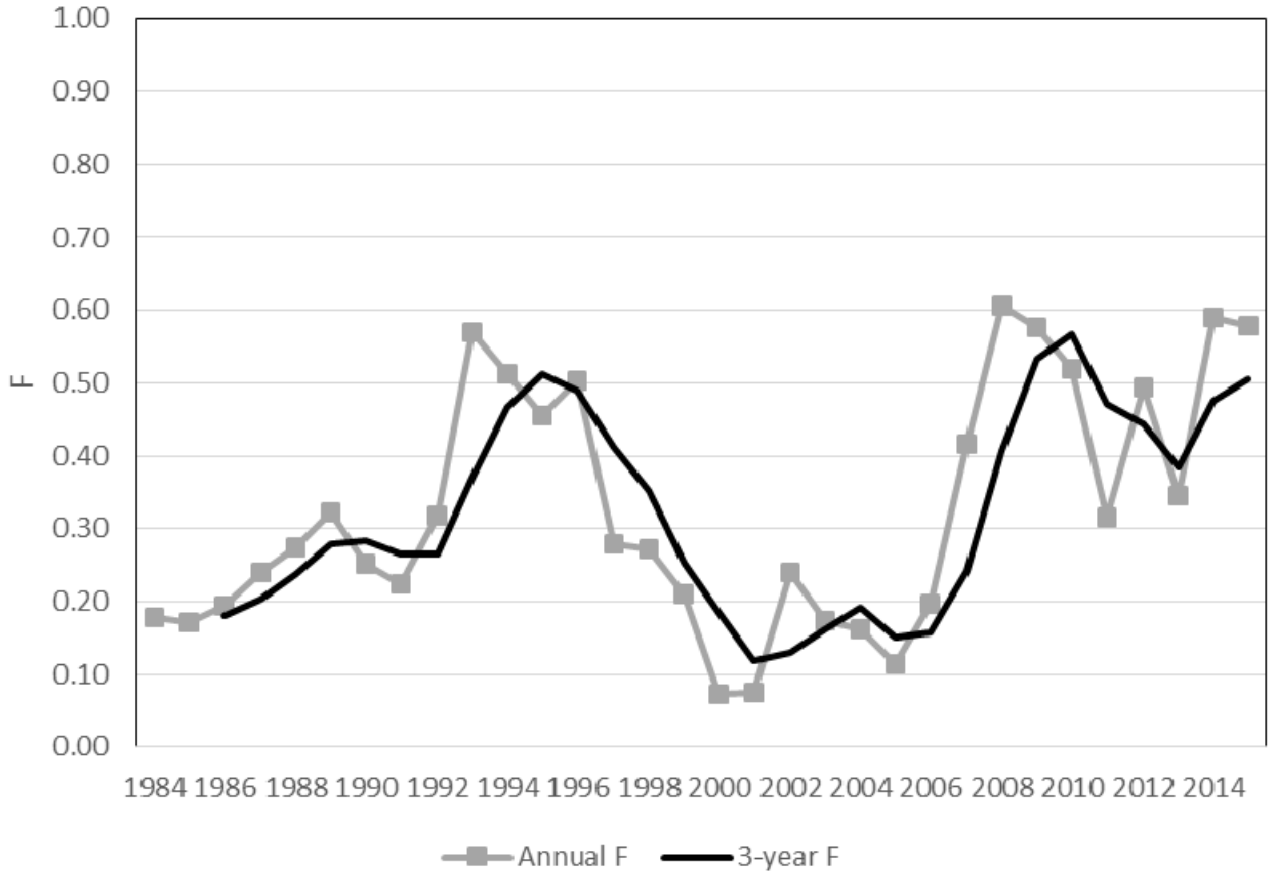


Figure 6. Annual fishing mortality (F) and 3-year average for LIS

Spawning Stock Biomass: SSB_{2015} (1,603 mt,) is below MSY target and threshold (SSB_{MSY} = 2,865 mt and $SSB_{75\%MSY}$ = 2,148 mt), indicating the stock is overfished.

Total abundance and spawning stock biomass declined rapidly from 1984 until the mid to late 1990s. Spawning stock biomass decreased by more than 75%, from over 6,350 mt at the beginning of the time-series to the current estimate of 1,551 mt.

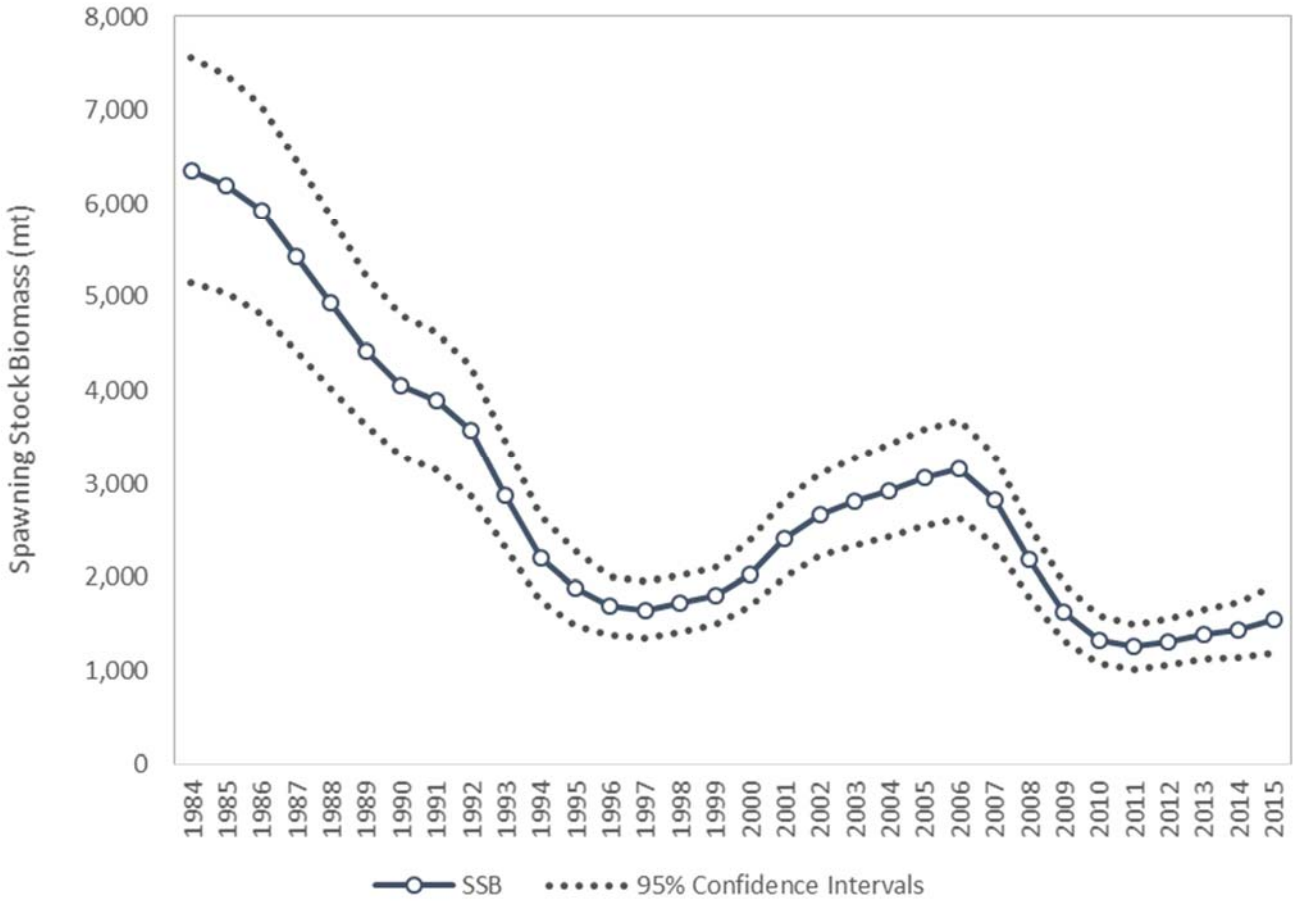


Figure 7. Estimates of spawning stock biomass for the LIS region.

Recruitment: Recruitment was highest in the early years of the time series and again in 2013 and 2015. The two recent peaks in recruitment bracketed the lowest recruitment year on record.

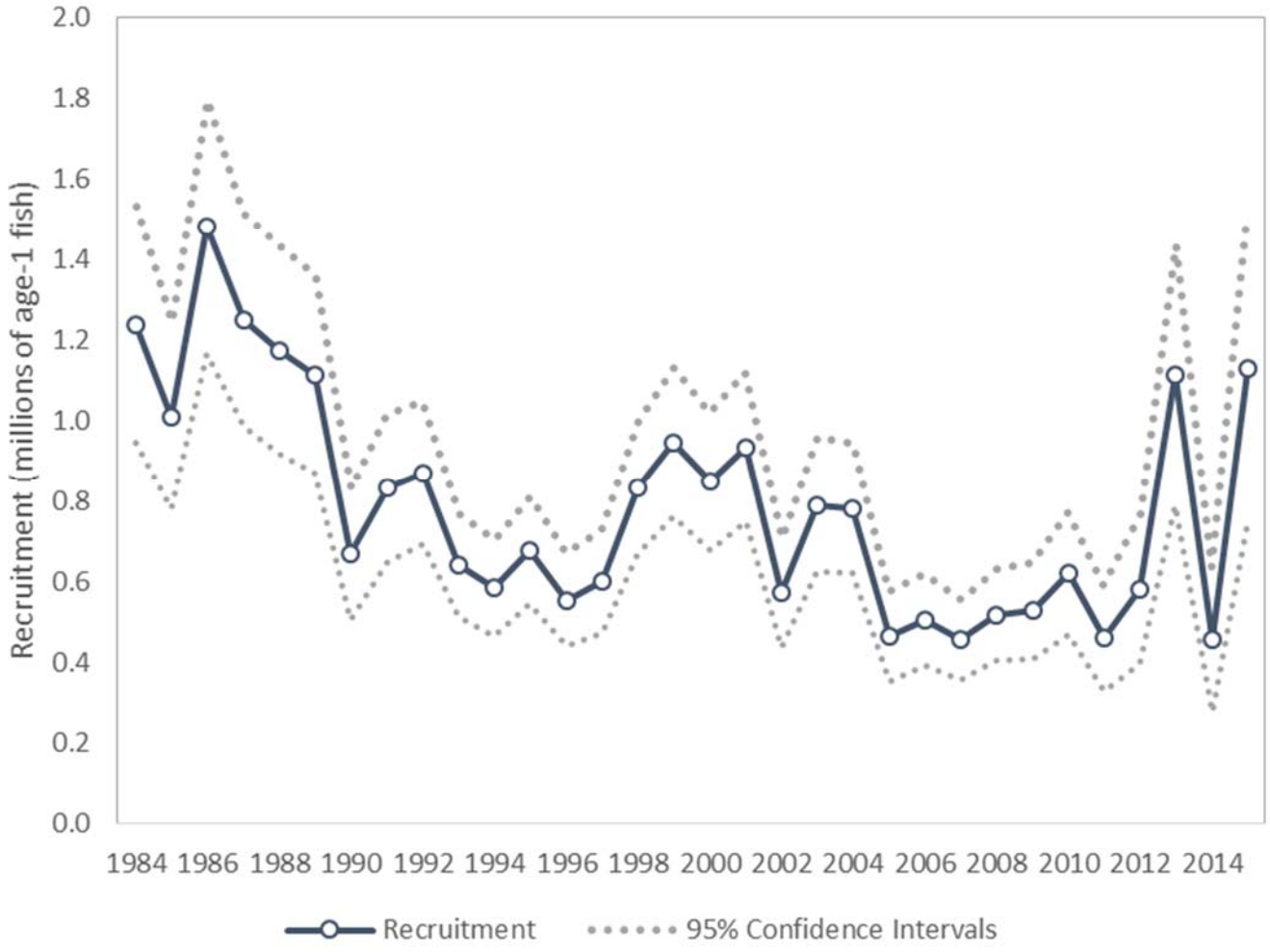


Figure 8. Recruitment estimates for LIS region

Abundance: Total abundance and spawning stock biomass declined rapidly from 1984 until the mid to late 1990s. Despite a period of slightly increased abundance in the early to mid-2000s, the overall trend has been a slower but consistent decline since 1995. Total estimated abundance declined by more than half, from 8 million fish (1984) to 3.5 million fish (2015). Abundance at age in the stock of the terminal year (2015) shows a dominance of fish aged 1 and 3, fewer age 2 fish and declining abundance from age 4 through age 12.

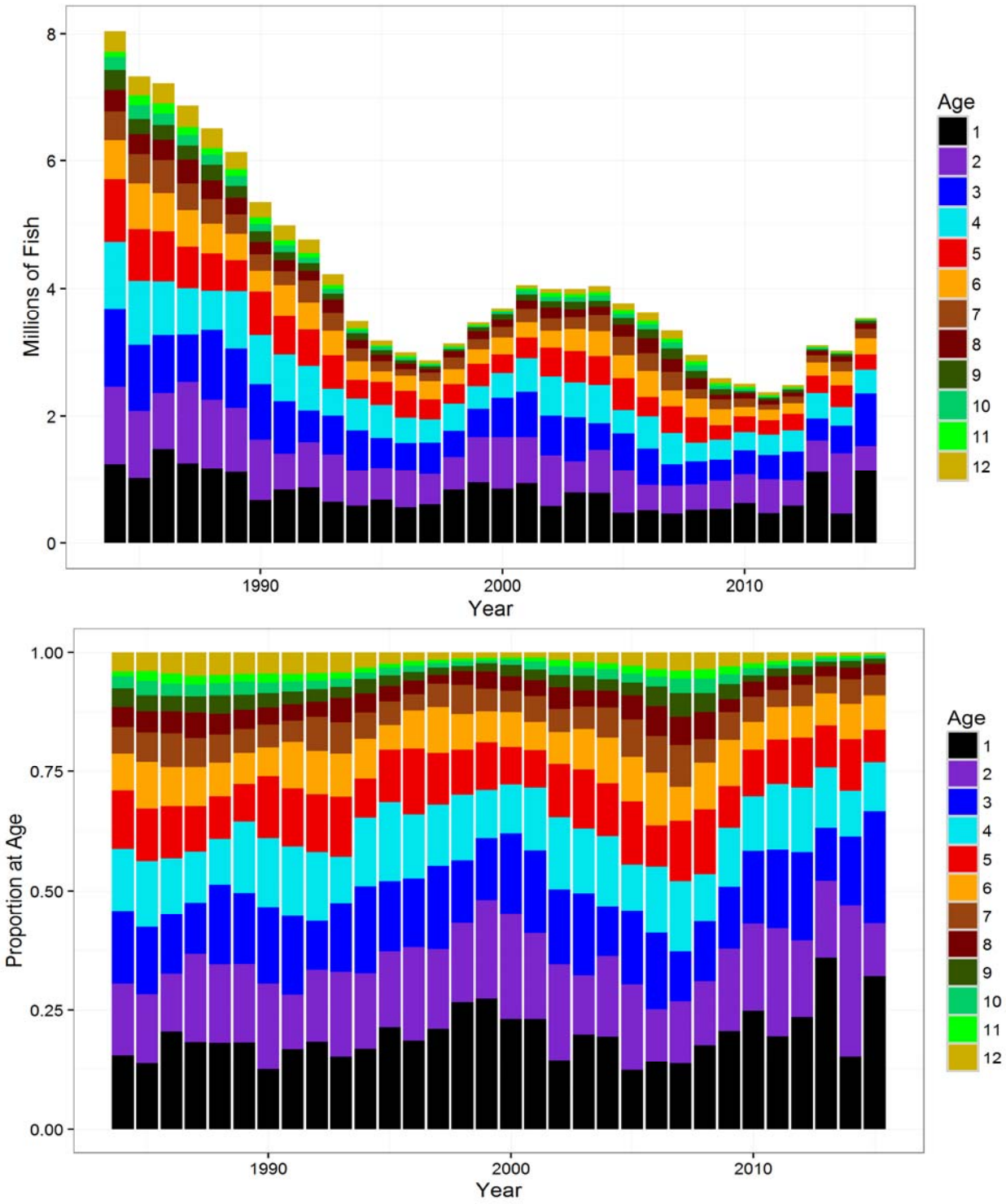


Figure 9. The top graph is the abundance at age for the LIS region in total numbers of fish. The bottom graph illustrates the data in terms of the overall percentage of fish at age within each year.

1.2.2.3 New Jersey – New York Bight

The 2016 stock assessment update indicates the New Jersey-New York Bight (NJ-NYB) stock is overfished and overfishing is occurring.

Fishing Mortality: Fishing mortality target and threshold reference points in the NJ-NYB region are defined as $F_{40\%SPR}$ and $F_{30\%SPR}$, respectively. ASAP model estimated values for the target and threshold are $F_{40\%} = 0.20$ and $F_{30\%} = 0.34$. The ASAP model runs indicated overfishing was occurring in the NJ-NYB region in 2015. Both the point estimate of $F_{2015} = 0.45$ and the 3-year average value of $F_{3yr} = 0.54$ were above the fishing mortality threshold.

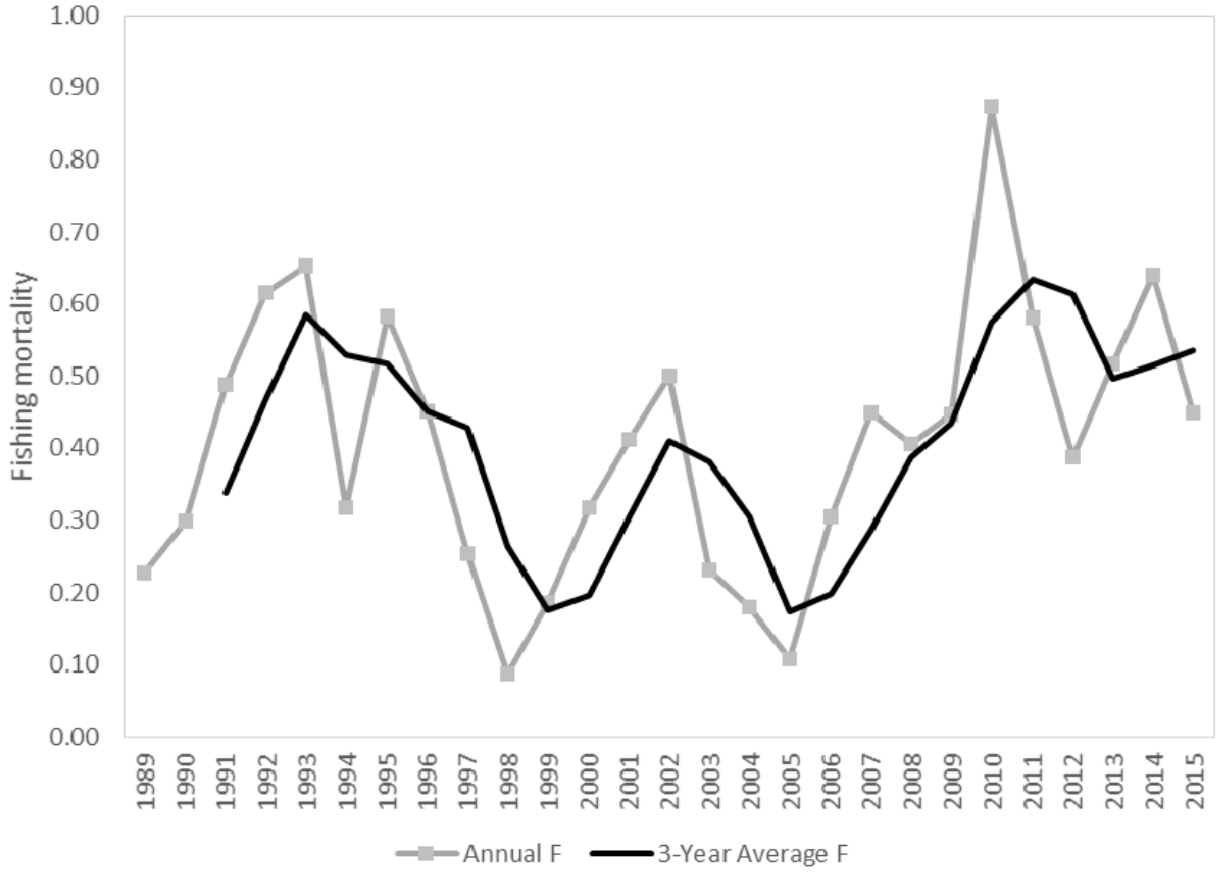


Figure 10. Fishing mortality estimates for the NJ-NYB region.

Spawning Stock Biomass: SSB_{2015} was estimated at 1,809 mt, approximately 23% below the SSB threshold (2,351 mt) and 43% below the target (3,154 mt), indicating the stock is overfished.

SSB shows a general decline from approximately 6,000 mt in 1989 to around 1,900 mt by 1996. Regulations in 1997 and 2003 allowed slight increases in SSB in subsequent years, but these gains were short lived as F rebounded. From 2006 to 2011, SSB declined from around 2,000 mt to 1,000 mt, but has since recovered to 1,835 mt (90% confidence intervals 1,352 - 2,489 mt).

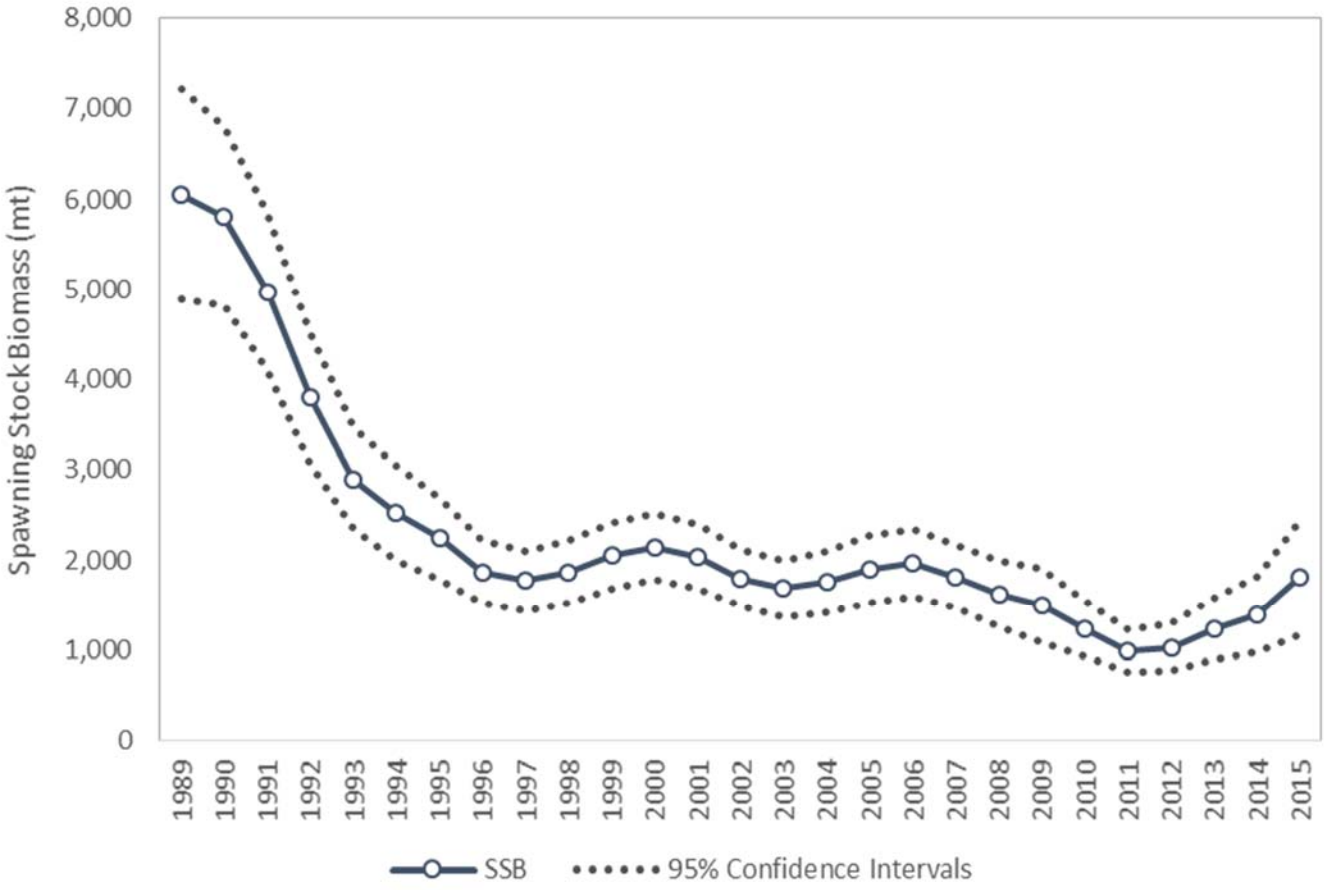


Figure 11. Spawning stock biomass estimates for the NJ-NYB region.

Recruitment: During the early 1990s, recruitment (age 1) follows a similar pattern as SSB, declining from 1.5 million in 1989 to less than 1 million by 1993. From 1993 to 2011, recruitment varied without trend between approximately 560,000 and 1,010,000 fish annually. Estimates of recruitment in the last four years of the model were above 950,000 fish, with an apparent strong year class in 2014, estimated at 2.26 million.

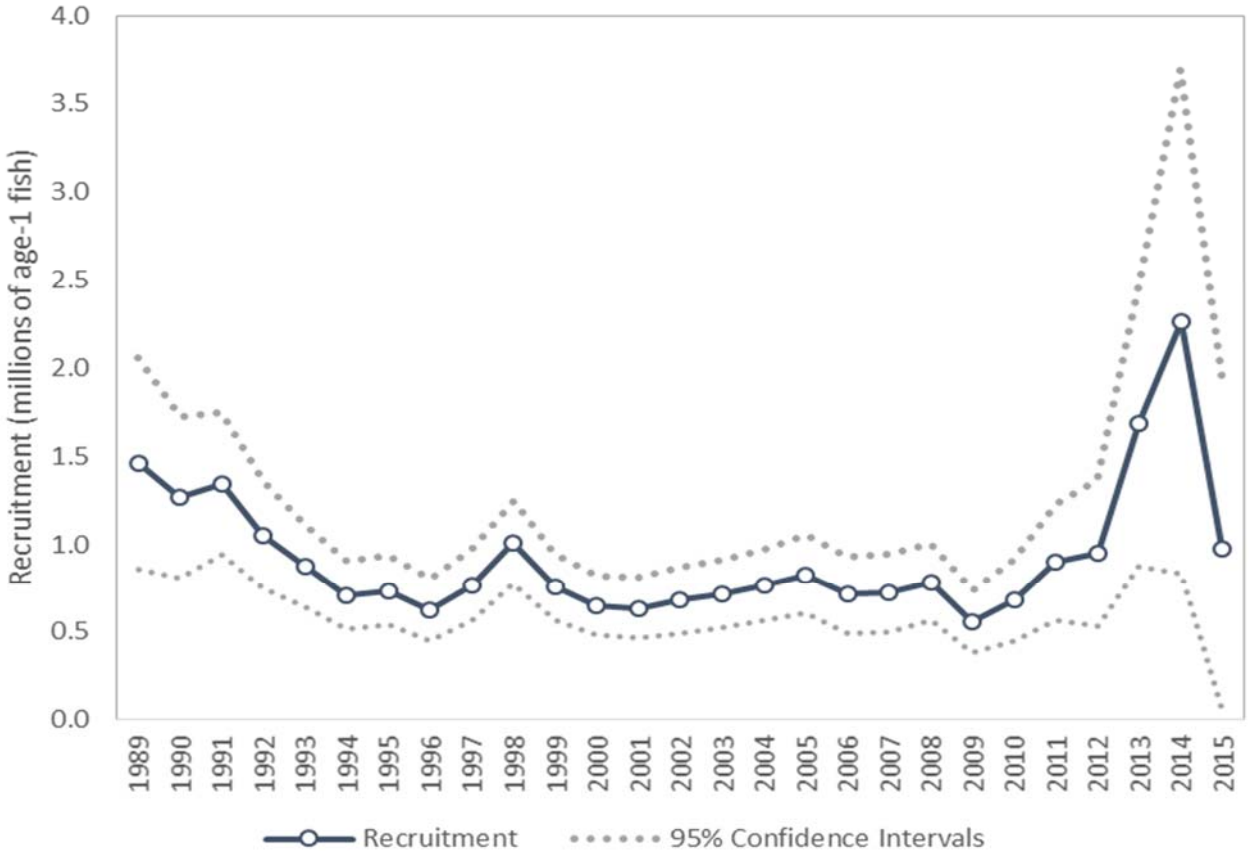


Figure 12. Recruitment estimates for the NJ-NYB region

Abundance: Abundance at age in the stock of the terminal year shows a dominance of fish aged 1 through 3 with declining numbers from age 4 through age 12.

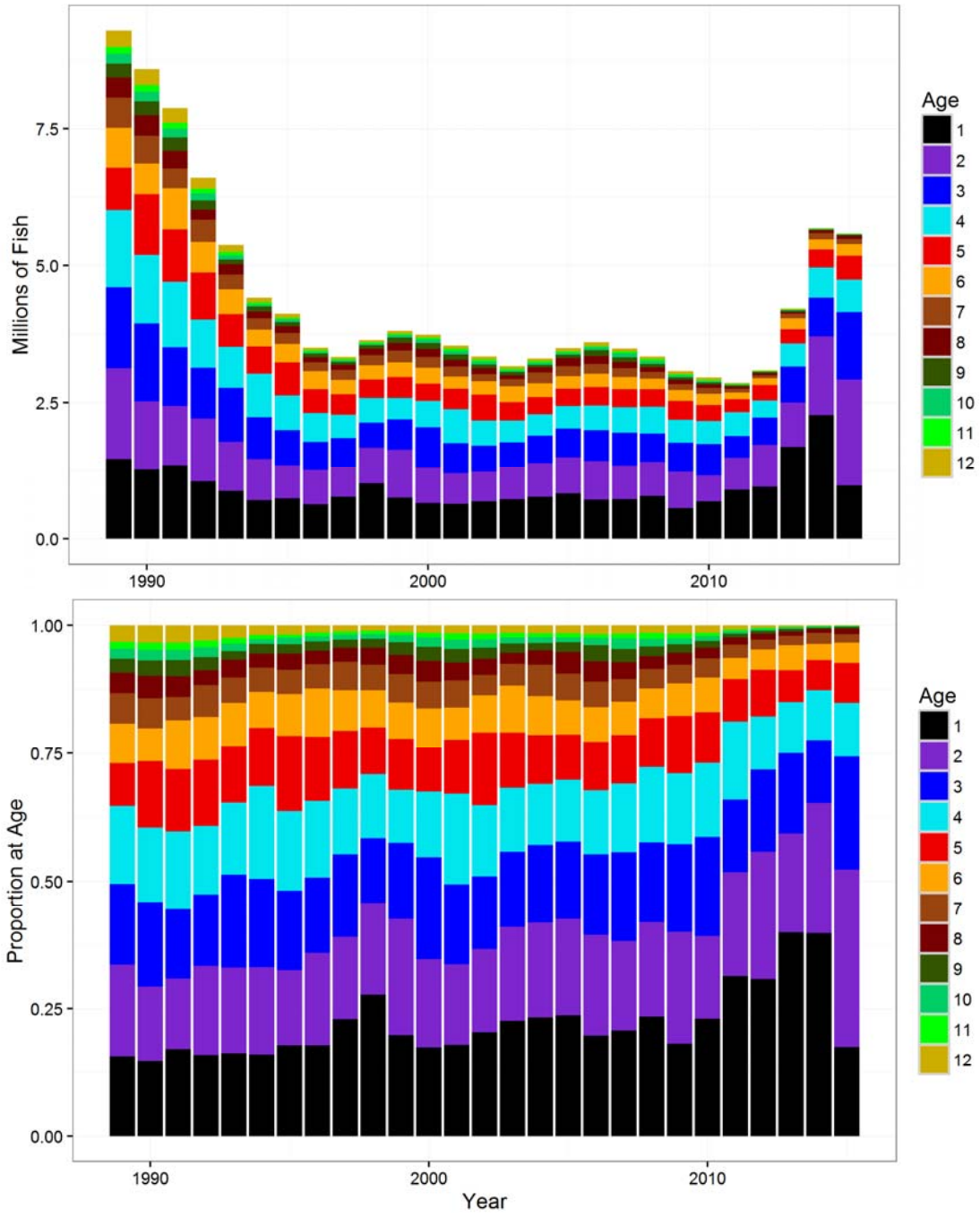


Figure 13. The top graph is the abundance at age for the NJ-NYB region in total numbers of fish. The bottom graph illustrates the data in terms of the overall percentage of fish at age within each year.

1.2.2.4 Delaware-Maryland-Virginia

The 2016 stock assessment update indicates the Delaware-Maryland-Virginia (DelMarVa) stock is overfished and overfishing is not occurring.

Fishing Mortality: F_{target} is defined as $F_{40\%SPR} = 0.16$, and $F_{threshold}$ is defined as $F_{30\%SPR} = 0.24$. The three year average F from 2013-2015 was 0.16, equal to the target and below the threshold, indicating overfishing is not occurring.

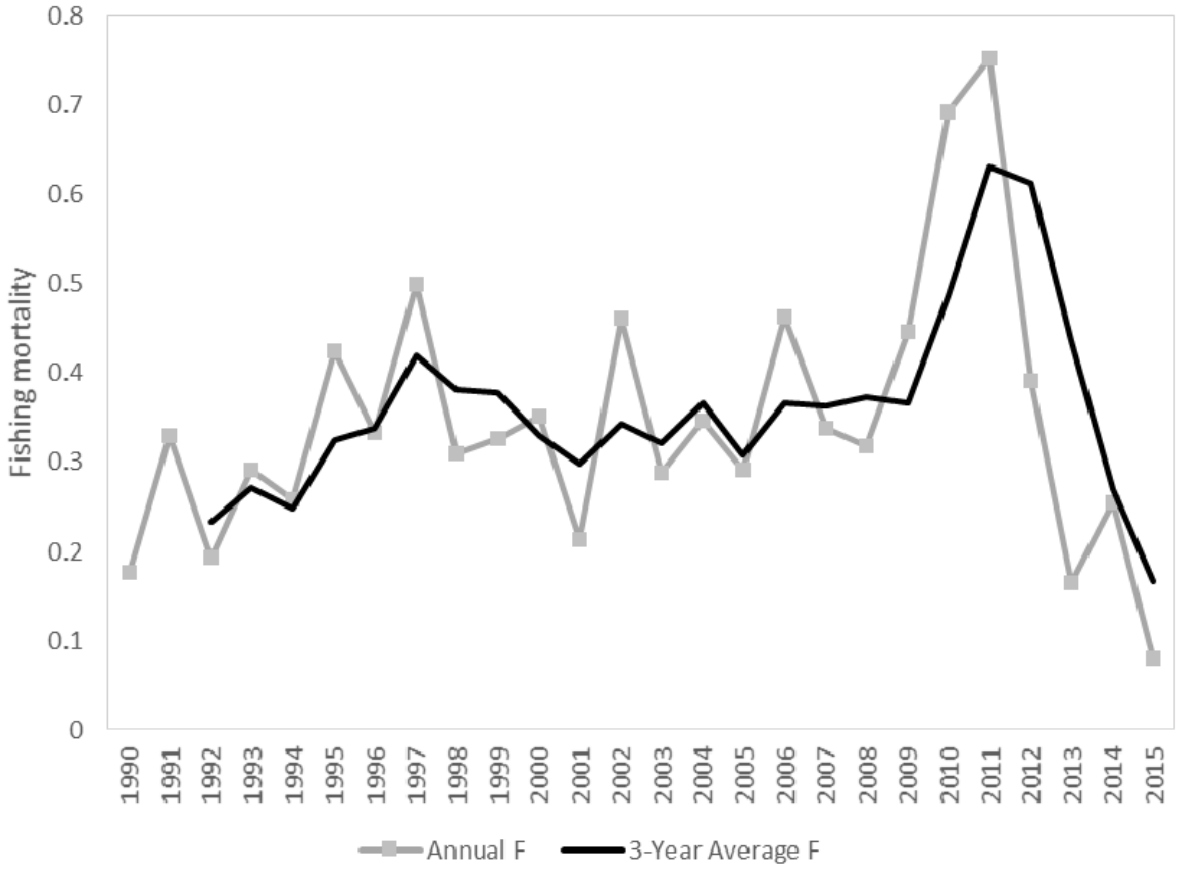


Figure 14. Fishing mortality estimates for the DelMarVa region

Spawning Stock Biomass: The SSB target for DelMarVa is the long-term equilibrium SSB associated with $F_{40\%SPR}$, equal to 1,919 mt. The SSB threshold is the SSB associated with $F_{30\%SPR}$ = 1,447 mt. Terminal year SSB 2015 estimate is 620.9 mt, below both the target and the threshold, indicating the stock is overfished.

Both total abundance and spawning stock biomass have declined steadily in the DelMarVa region since 2009, and SSB reached historically low level of 609 mt in 2015.

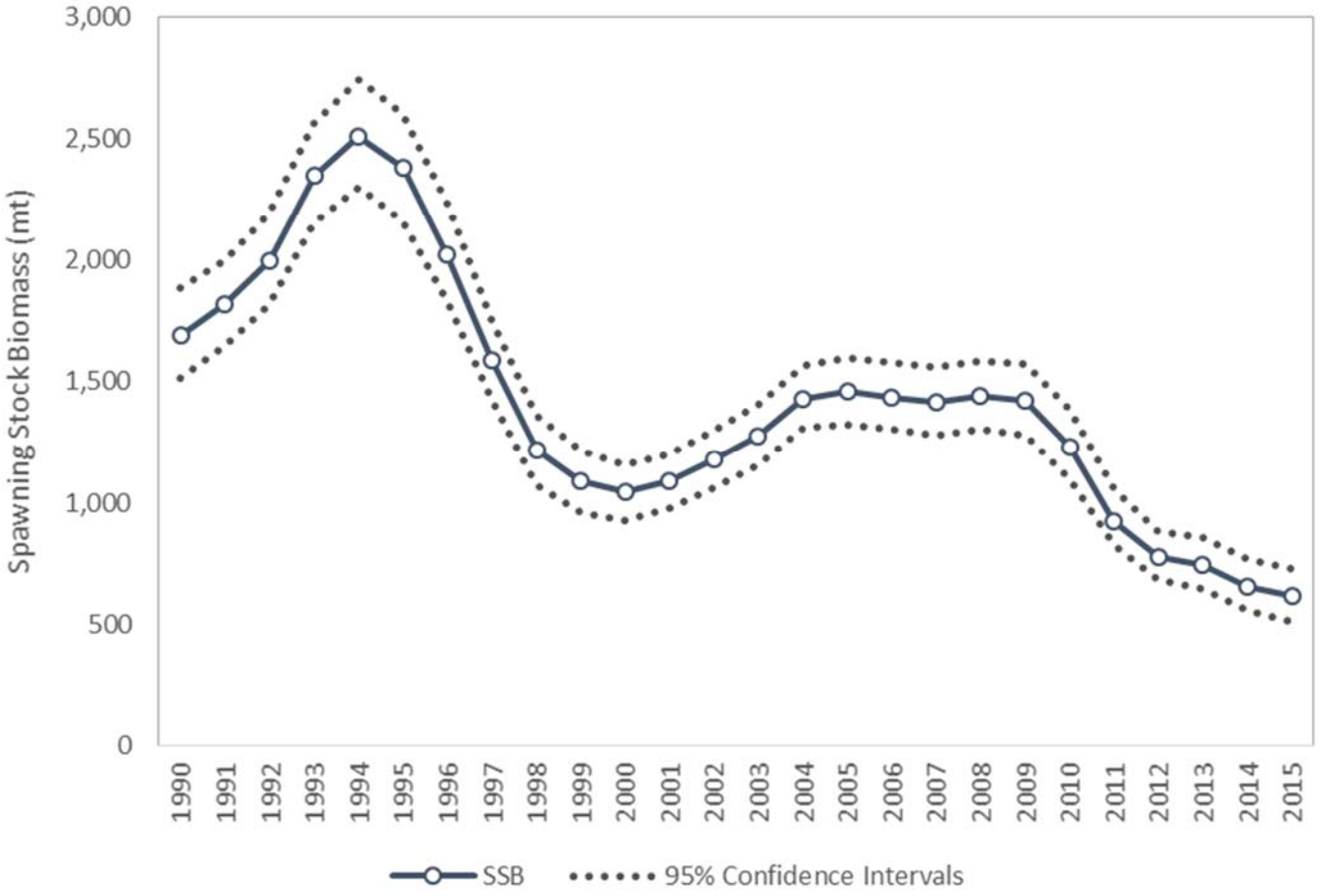


Figure 15. Spawning stock biomass estimates for the DelMarVa region

Recruitment: Recruitment appears to have been on the decline since 2009, reaching the lowest level in 2013 at 110,620 fish, but began to increase thereafter. Overall, recruitment has exhibited low variability and a lack of sharp inter-annual changes.

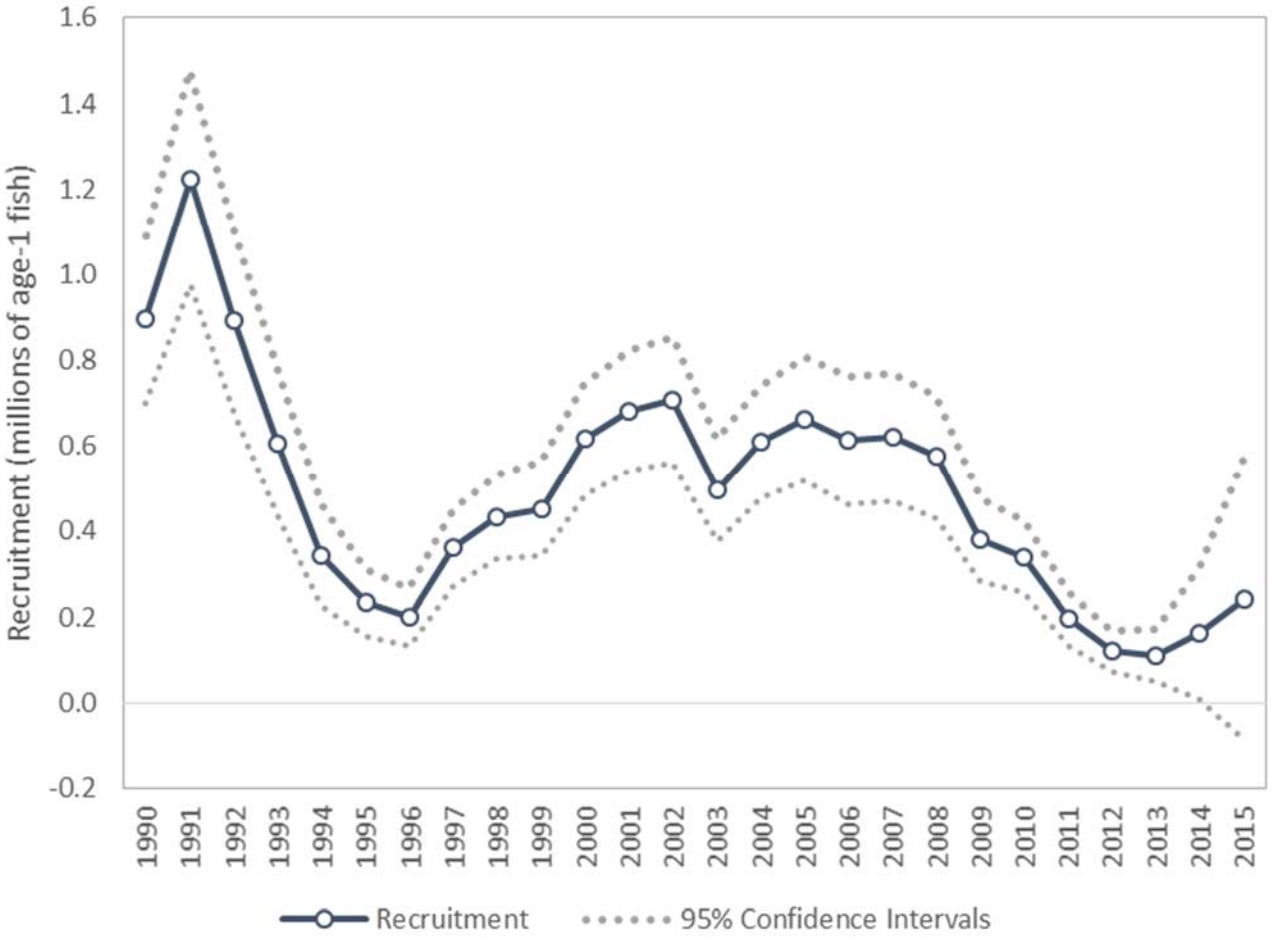


Figure 16. Recruitment estimates for the DelMarVa region

Abundance: Both total abundance and spawning stock biomass have declined steadily in the DelMarVa region since 2009. Total abundance declined from a stable level of about 2.5 million fish in 2002-2009 period to the current low of 0.86 million fish in 2015.

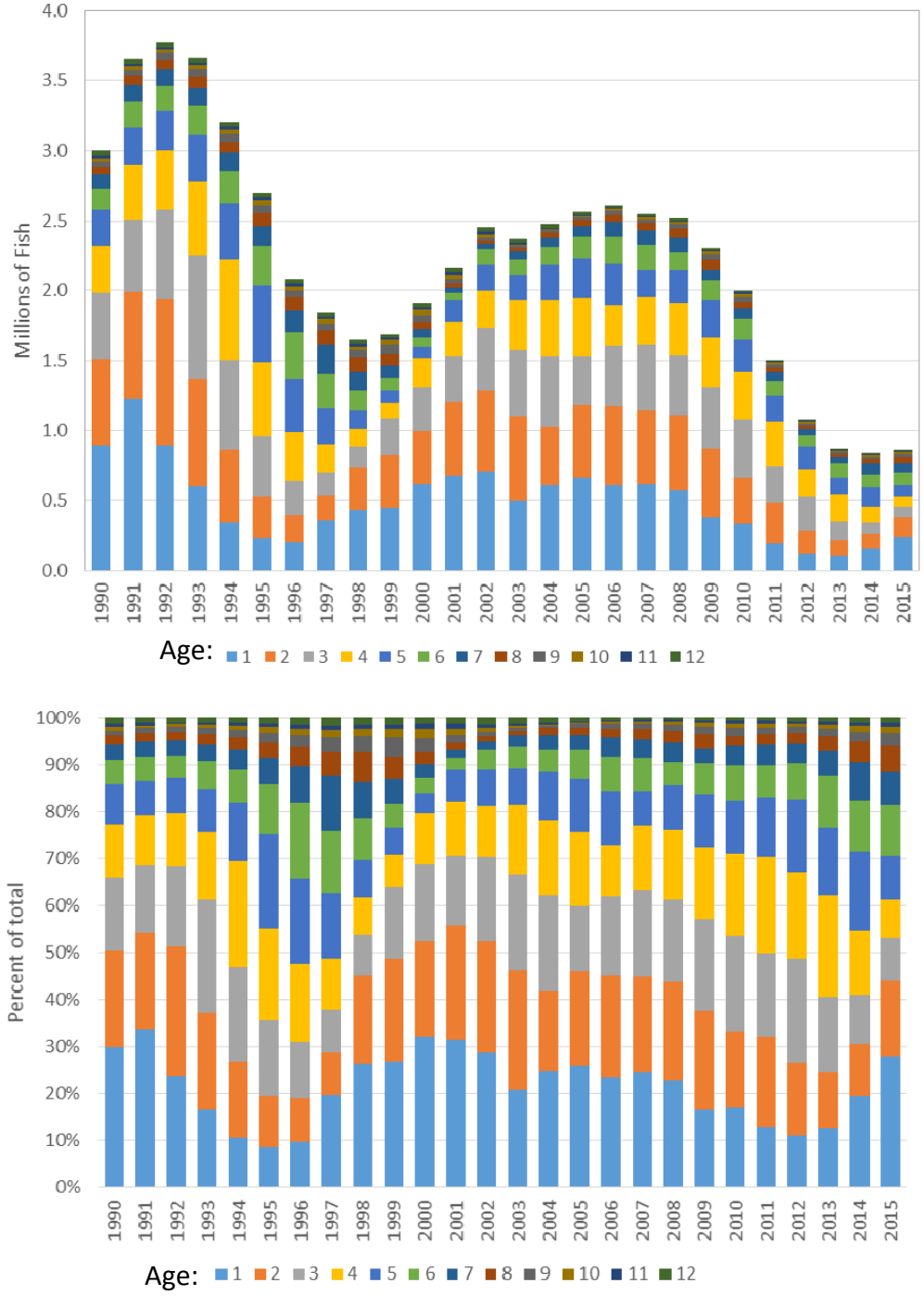


Figure 17. The top graph is the abundance at age for the DelMarVa region in total numbers of fish. The bottom graph illustrates the data in terms of the overall percentage of fish at age within each year.

1.3 DESCRIPTION OF THE FISHERY

The proportion of harvest from each region has fluctuated somewhat over the years (Figure 18), with the DelMarVa's proportion declining in recent years and the LIS region's proportion growing. From 2013-2015, MARI accounted for 27% of coastwide removals, LIS accounted for 35%, NJ-NYB accounted for 32%, and DMV accounted for 5%.

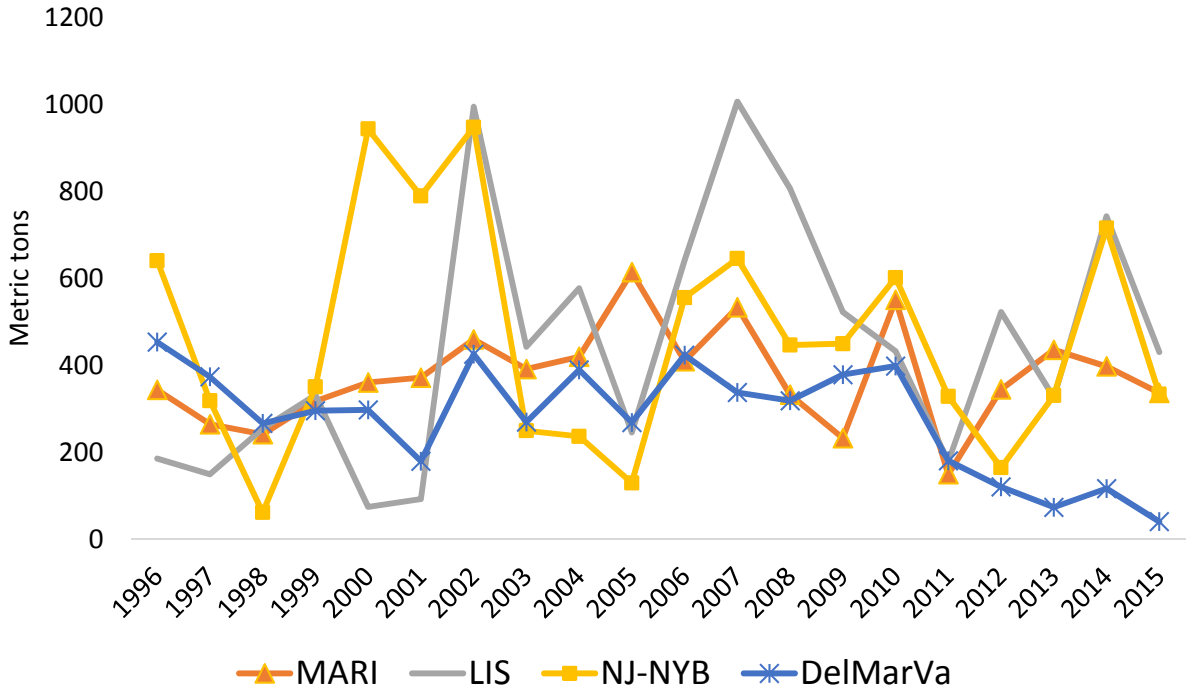


Figure 18. Harvest by Region (1996-2015); including recreation harvest, recreational release mortality, and commercial landings

Coastwide recreational harvest peaked in 1986 at over 7 million fish and since declined. Average recreational harvest from 2013-2015 was 708,136 fish, with 2014 nearly double the harvest of 2013 and 2015. In 2014, over 1 million fish were harvested compared to approximately 545,282 fish in 2015. The 2014 estimate was also more uncertain than the 2013 and 2015 estimates, with a PSE of 24.7% compared to 16-17% in 2013 and 2015.

Coastwide commercial harvest showed a similar pattern to recreational harvest, although the magnitude is smaller, representing approximately 9% of the total harvest over the entire time series. It peaked in the late 1980s at 1.2 million lbs (525 mt), and declined to an average of 273,373 lbs (124 mt) in 2013-2015. Commercial harvest in 2014 was 284,396 lbs (129 mt), not significantly different from the 2015 harvest of approximately 260,000 lbs.

1.3.1 Massachusetts and Rhode Island

Recreational anglers account for upwards of 90% of landings in this region. In the MARI region, recreational landings peaked in 1986 at nearly 2.7 million fish and fell sharply to about 13% of

its peak by the mid-1990s. Since then landings have remained low and have varied in the range of approximately 52,000 to 242,000 fish. The 2013-2015 average recreational landings are 167,085 fish. The majority (nearly 75%) of tautog recreational harvest in the MARI region comes from the private/rental boat mode. The remaining 25% is split relatively evenly among the shore and for-hire (party/charter boat) modes.

Commercial landings in the MARI region peaked in 1991 at approximately 725,300 lbs (329 mt), declined to 97,000 lbs (44 mt) in 1996, and since then has varied in the range of 110,000 – 200,000 lbs (50 to 90 mt). The 2013-2015 average landings in the MARI region were approximately 121,250 lbs (55 mt).

Total removals in the MARI region, including recreation harvest, recreational release mortality, and commercial landings averaged 390 mt from 2005-2015; 337 mt were taken in 2015 (Figure 19).

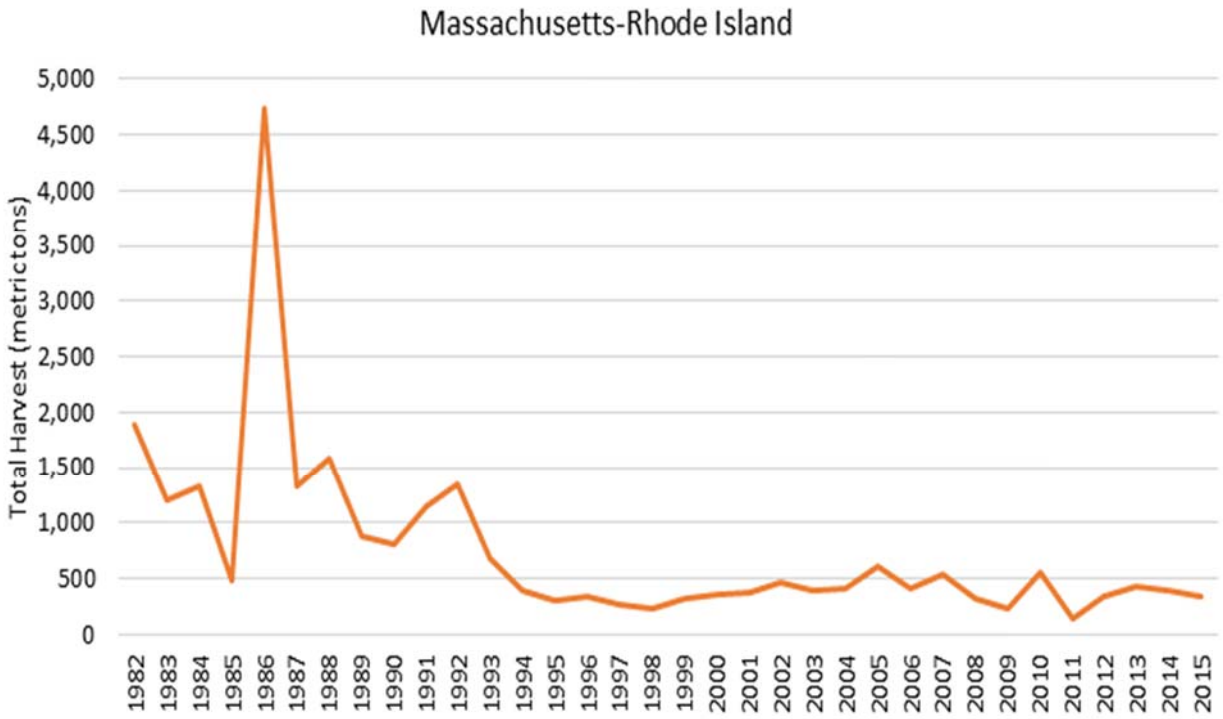


Figure 19. MARI Harvest; including recreation harvest, recreational release mortality, and commercial landings

1.3.2 Long Island Sound

Recreational anglers account for approximately 88% of harvest in this region (landings and dead discards). In the LIS region, recreational landings peaked in 1988 at 667,000 fish and declined to 29,000 fish in 2000. Since then landings have increased and have varied in the range from 76,000-514,000 fish. The 2013-2015 average recreational landings are 220,000 fish.

Commercial harvest accounts for approximately 12% of total harvest. In the LIS region, commercial landings peaked in 1987 at 350,535 lbs (159 mt), declined to 33,069 lbs (15 mt) in

1999 and 2000, and since then have stabilized in the range of 88,185 lbs (40 mt). The 2010-2014 average landings in LIS are 82,894 lbs (37.6 mt).

Total removals in the LIS region, including recreation harvest, recreational release mortality, and commercial landings averaged 1.16 million lbs (530 mt) from 2005-2015; 950,192 lbs (431 mt) were taken in 2015 (Figure 20).

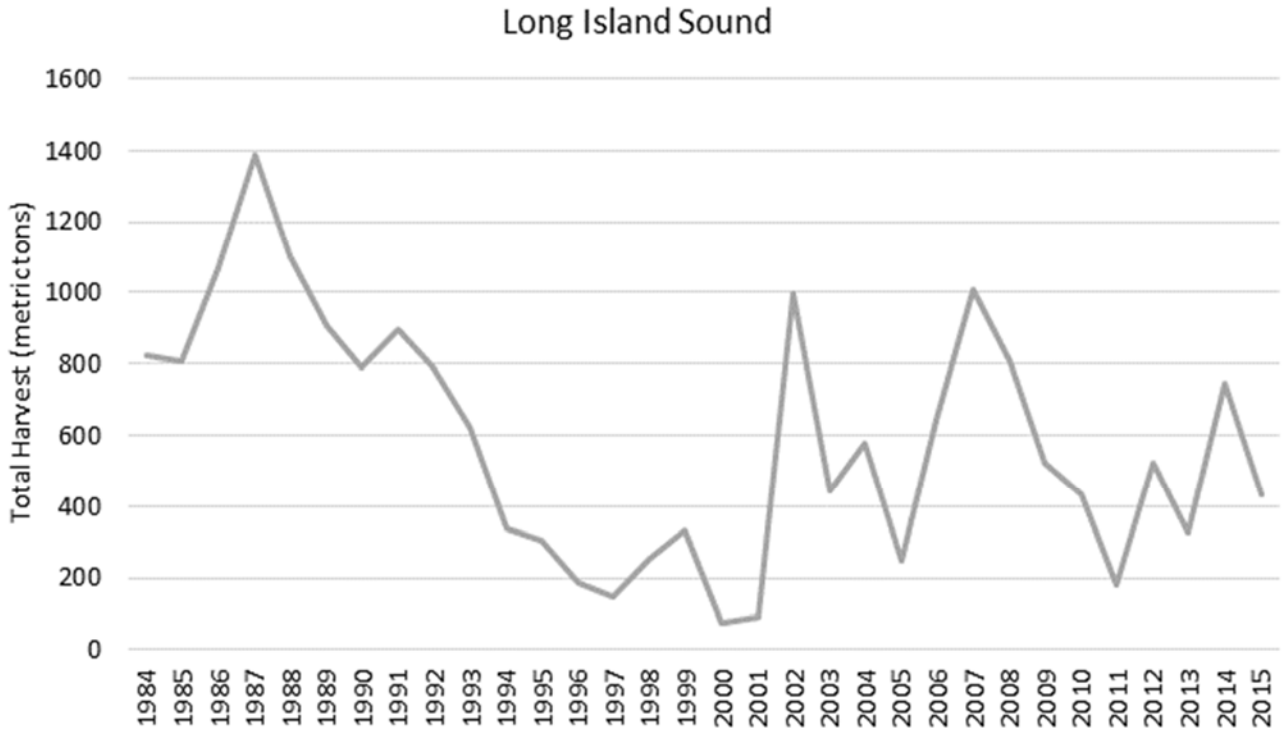


Figure 20. LIS Harvest; including recreation harvest, recreational release mortality, and commercial landings

1.3.2 New Jersey - New York Bight

Recreatinal harvest accounts for approximately 90% of landings within the NJ-NYB region. Recreational harvest exceeded one million fish per year in most years between 1988 and 1993, with a peak of 1.56 million fish in 1991. Harvest dropped quickly following the peak, however, reaching a time series low of just 24,000 fish in 1998 with an average annual harvest of 415,000 fish between 1994 and 2002. Recreational landings dropped again in 2003, falling below 200,000 fish before recovering slightly by 2006. Between 2006 and 2015, annual landings had high inter-annual variability without a trend, ranging from approximately 70,000 to 400,000 fish, with an average of 268,000 fish.

In the NJ-NYB region, commercial harvest during the late 1980s to mid-1990s fluctuated around 154,324 lbs (70 mt) annually, but declined rapidly to 44,092 lbs (20 mt) by 1999. Landings rebounded to 132,277 lbs (60 mt) by 2007 and 2008, and since then fell to 88,185 lbs (40 mt) and below. Commercial harvest during 2013 to 2015 has shown a declining trend falling from

99,207 lbs (44 mt) in 2013 to nearly 86,000 lbs (39 mt) in 2015 with an average harvest of 90,389 lbs (41 mt) for this time period.

Total removals in the NJ-NYB region, including recreation harvest, recreational release mortality, and commercial landings averaged 947,988 lbs (430 mt) from 2005-2015; 736,344 (334 mt) were taken in 2015 (Figure 21).

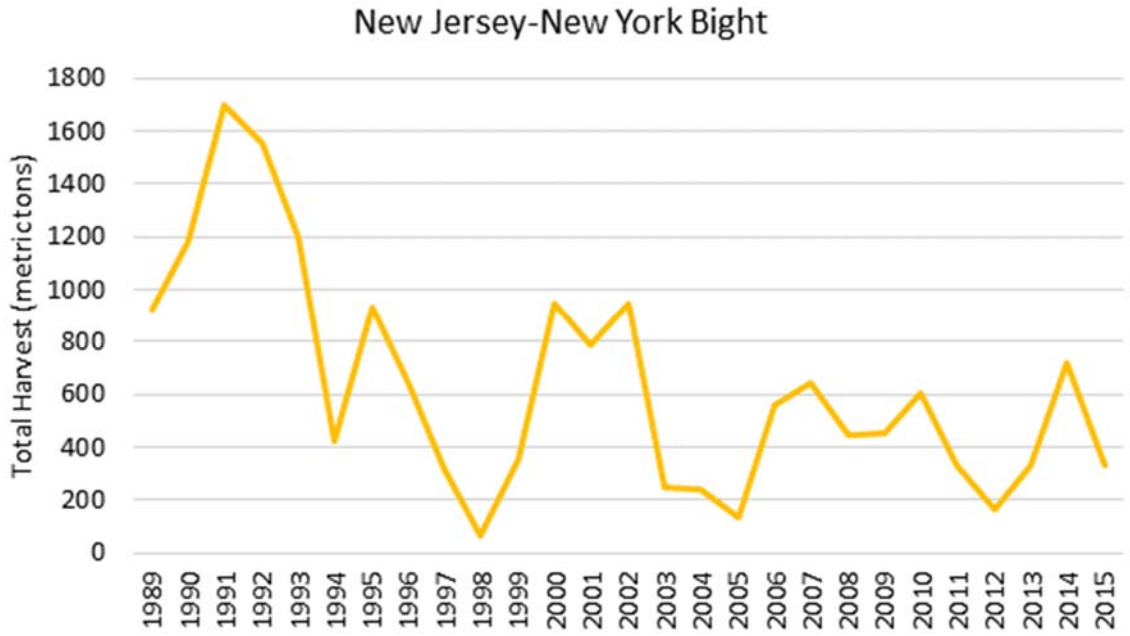


Figure 21. NJ-NYB Harvest; including recreation harvest, recreational release mortality, and commercial landings

1.3.3 Delaware, Maryland, Virginia

Recreational harvest peaked in 1988, 1989 and 1995 at more than half a million fish. After the FMP was implemented, harvest levels decreased by half. Average recreational harvest from 2000-2009 was 188,000 fish and average harvest from 2010-2015 was 92,000 fish. Recreational harvest in DelMarVa has declined from 241,064 fish in 2010 to 22,215 fish in 2015. The decline coincided with the protective regulatory measures (minimum size increase and seasonal closures) instituted in 2012 to reduce fishing mortality. Recreational landings in 2015 were the lowest in time series. Recreational discards have also declined from 686,392 released fish in 2010 to 125,258 released fish in 2015.

Commercial landings have declined in recent years, primarily due to a decline in Virginia, which accounts for the majority of commercial effort. Average commercial landings for 2000-2009 were approximately 17,000 lbs. Average commercial landings for 2013-2015 were 10,740 pounds (4.9 mt), with 2015 being much lower at 6,233 lbs (2.8 mt). Data on commercial discards were not available, but discards are believed to be minimal.

Total removals in the DelMarVa region, including recreation harvest, recreational release mortality, and commercial landings averaged 529,109 lbs (240 mt) from 2005-2015; 90,390 lbs (41 mt) were taken in 2015 (Figure 22).

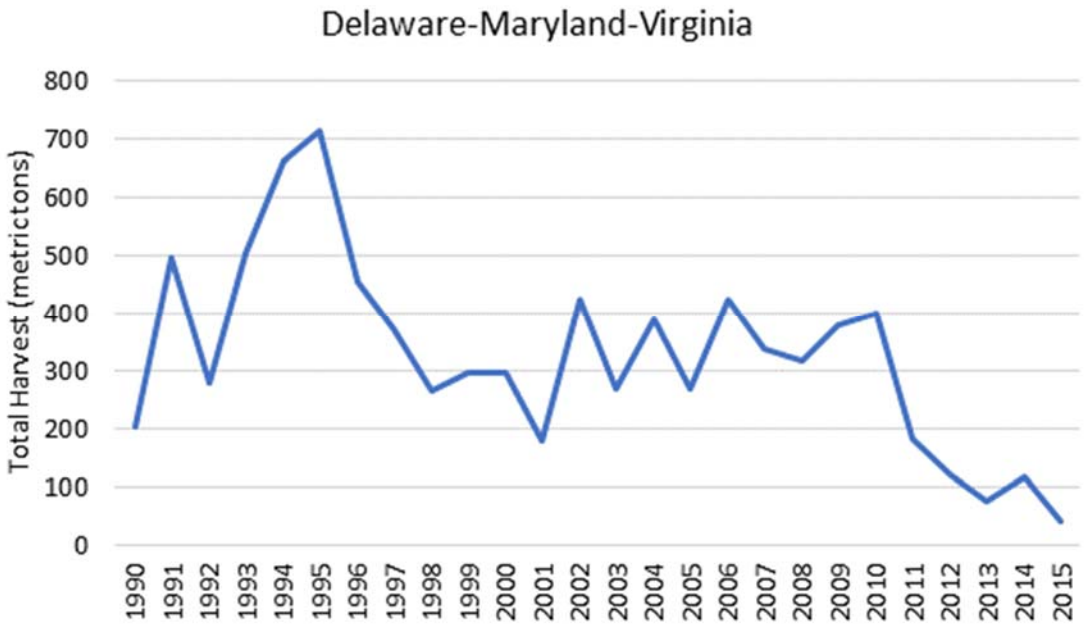


Figure 22. DelMarVa Harvest; including recreation harvest, recreational release mortality, and commercial landings

1.4 HABITAT CONSIDERATIONS

1.4.1 Description of the Habitat

Tautog are attracted to many types of structured habitat in all stages of their life cycle after their three-week planktonic larval stage. Suitable structures include both natural and man-made, such as submerged vegetation, shellfish beds, rocks, pilings, shipwrecks and artificial reefs (Olla et al, 1974; Briggs 1975; Briggs and O'Connor 1971; Orth and Heck 1980; Dorf and Powell 1997; Steimle and Shaheen 1999). North of Long Island, New York, rocks and boulders left by glacial deposition are abundant and provide rock-reef habitat, especially for larger tautog. South of Long Island, natural rocky habitats are rare (Flint 1971) and tautog in southern areas commonly inhabit shellfish beds, coastal jetties, pilings, shipwrecks, and artificial reefs. Tautog are principally coastal fish, occurring most commonly inshore from the intertidal zone to within about 50km from shore (Collette and Klein-MacPhee 2002).

Eggs and Larvae: Studies have collected them on the inner continental shelf and within estuaries from May through August (Berrien et al. 1978, Colton et al. 1979, Ferraro 1980, Bourne and Govoni 1988, Monteleone 1992, Able and Fahay 1998, Witting et al. 1999). Viable eggs are 1 millimeter (mm) in diameter, buoyant and are found in the greatest numbers at the water surface. Hatching occurs in 81 hours at 15°C and 42 hours at 20°C (Auster 1989, Perry 1994). The larvae (2 mm at hatching) stay near the surface during the day and may go deeper

at night (Malchoff 1993). After approximately 3 weeks, larvae undergo metamorphosis and settle out of the water column as juveniles (Sogard et al. 1992, Dorf 1994).

Juveniles: Juvenile tautog require sheltered areas for feeding and protection from predators. They are most often found in shallow nearshore vegetated areas such as eelgrass (*Zostera marina*) or algal beds, (commonly sea lettuce *Ulva lactuca*), growing equally well in all of these habitat types (Kuropat et al. 2002). However, environmental factors associated with temperature and dissolved oxygen appear to influence growth rates in these shallow habitats (Phelan et al. 2000). Other studies have found that newly settled individuals prefer areas less than one meter deep (Sogard et al 1992, Dorf and Powell 1997), but move out to deeper water as they grow. Juvenile tautog have been shown to have size specific preference when choosing a shelter (Dixon 1994) and appear to have a strong affinity to their home site, rarely venturing more than a few meters away (Olla et al. 1974, Able et al. 2005).

Adults: Tautog of all sizes exhibit diurnal activity and enter a torpid state at night during which they seek refuge in some type of structure. Soon after morning twilight, tautog have been observed leaving their night time shelter to feed throughout the day (Olla et al. 1974; 1975). When tautog are not feeding during the day, they can be found resting on sand or within shelter, lying on their sides, often grouped together (Bigelow 1974). Elevated temperatures also evoke shelter seeking behavior and depress feeding (Olla and Studholme 1975, Olla et al. 1975a, 1978).

Adult tautog undertake seasonal inshore-offshore migrations in the northern part of their range (New York and north), moving into deeper water when temperatures drop to 8-12°C (Collette and Klein-MacPhee 2002). However a study of the seasonal occurrence of tautog in the lower Chesapeake Bay indicated that most fish tagged and released in these southern waters remained inshore for the winter rather than moving offshore (Arendt et al. 2001). When water temperatures fall between 5-8°C, tautog enter a torpid state and hide in some type of structured habitat (Cooper 1966, Olla et al. 1974, 1979). Juvenile tautog have been observed overwintering in shallow water, lethargic or torpid and partially buried in silt when water temperatures fell below 6°C (Olla et al. 1974). During winter, juveniles appear to remain inshore at perennial sites and disperse during the spring (Stolgitis 1970; Olla et al. 1979).

Tautog are sight feeders, feeding during the day on mollusks, especially mussels (*Mytilus edulis* in the north and *Brachiodontes exustus* in the south), barnacles, decapods including lobster, and echinoderms (Collette and Klein-MacPhee 2002). Juveniles feed primarily on copepods, amphipods, and small decapods (Dorf 1994).

1.4.2 Physical Habitat Characteristics

1.4.2.1 Dissolved Oxygen (DO) levels

No information is available on the effects of low DO levels on eggs or larval tautog. Juvenile tautog are considered to be “hypoxia-tolerant” (LC50 less than or equal to 1.6 mg/L) based on laboratory studies (D. Miller, EPA, Narragansett, Rhode Island, 1995, personal communication).

No laboratory information is available on effects of hypoxia on adult tautog. A field study showed that catch rates declined by half when DO levels drop below 3.0 mg/l and were absent in areas with DO below 2 mg/l (Howell and Simpson 1994). Tautog are capable of leaving low oxygen areas (Ogren and Chess 1969), although some adult mortality has been reported in association with major anoxic events (Perlmutter 1952, Azarovitz et al. 1979).

1.4.2.2 Temperature

High water temperatures (such as those that can result from passing through a power plant cooling water system) can result in egg mortality (Smith et al. 1979) as well as larval mortality or deformity (Olla and Samet 1978). At higher water temperatures larval metabolic rate and yolk usage increases. The resulting larvae may be smaller and at a competitive disadvantage with larger larvae, or other planktivores, when first required to feed on plankton (Laurence 1973). This may slow growth and reduce success in reaching the protected habitats required for settlement.

Adults seek shelter during the day at high water temperatures, and reduce their feeding and aggressive activities (Olla and Studholme 1975, Olla et al. 1978, Olla et al. 1980). Extended periods of high water temperatures may cause large adults to move to cooler water (Adams 1993).

Water temperature serves as the primary trigger for adult tautog seasonal migrations (Olla et al. 1980). At very low water temperatures, adult tautog become torpid (Cooper 1966, Olla et al. 1974). Some adults remain active throughout the year, particularly in the more southerly portion of the species range (Eklund and Targett 1991, Adams 1993, Hostetter and Munroe 1993).

1.4.2.3 Salinity

Although reported from brackish water, tautog have not been collected in freshwater (Bigelow and Schroeder 1953).

1.4.3 Present Condition of Habitats

Besides over exploitation, which primarily affects adult tautog, other sources of mortality can reduce abundance. Very little information is available on disease effects, although finrot has been reported in some locations (see Steimle and Shaheen, 1999). Tautog occur near areas immediately associated with human activity (shallow estuarine areas, rocky and artificial reefs, and submerged stormwater and sewage outfall pipes, etc.) which has resulted in past and current changes in habitat availability and quality. Development of nearshore areas through such activities as dredging of material for channel maintenance, marine construction and other shoreline development resulting in pollutant discharges will impact tautog populations at all life history stages. Shipwreck salvage or reduction in reef height and complexity (shelter sites) may reduce their value as adult tautog habitat. Use of “rock-hopper” roller trawling gear over wrecks, low profile reefs and mussel beds also threatens the quality of these habitats. Declining oyster beds is yet another threat to the estuarine habitat needs of juvenile tautog and other species with similar needs (Chesapeake Bay Program 1994).

Loss or destruction of vegetated bottom areas eliminates juvenile nursery areas. Increased turbidity and siltation due to dredging activities may inhibit feeding in larvae, degrade submerged aquatic vegetation beds used as nursery habitat, as well as damage adult spawning areas. Contaminants, disturbed in the dredging process, and brought into the water column could affect egg, larval and juvenile survival directly, or indirectly, through their food sources.

Entrainment of eggs and larvae in power plant intakes may result in physical damage to early life history stages and heated effluent from these and other industrial outfalls may also result in thermal stress. Discharge of treated sewage effluent and industrial wastes may have direct effects on fish as well as indirect effects on habitat and potential food sources through eutrophication. Results could include alterations of community composition (animal and vegetation) due to nutrient enrichment, and resulting anoxic and hypoxic environments.

Contaminants in the environment can affect tautog directly through contact and indirectly through ingestion of contaminated food. Reductions in growth and reproductive success, as well as direct mortality, are possible effects due to metals, oil, or other chemicals, which often remain in natural environments for long periods of time without degradation to less harmful forms. Biological sources of contamination could include direct contact with or ingestion of food associated with noxious or toxic phytoplankton blooms.

No information is available on direct pollution effects in tautog, however chromium, copper, and nickel levels in New Jersey coastal adult tautog liver tissue decreased significantly with increasing body length (Mears and Eisler 1977). Hall et al. (1978) found low to average levels of 15 metals in tautog muscle tissue (unknown collection site). Recently, the National Marine Fisheries Service (1995) found metal concentrations (silver, cadmium, chromium, copper, nickel, lead, zinc, arsenic and mercury), as well as PCB, PAH and pesticide concentrations below FDA action concentrations in adult tautog collected from Manasquan Inlet, New Jersey. In a laboratory study, Deacutis (1982) found that adult tautog showed little tendency to avoid oil contaminated feeding locations and would readily consume fuel oil contaminated bivalve meat.

Greater direct contaminant effects could occur with eggs and larvae, but because tautog feed on bottom-dwelling organisms, juveniles and adults could experience trophic transfer, resulting in indirect effects and long-term accumulation of contaminants in edible flesh.

Prevention of habitat loss through the species range should be a high priority for restoration of the tautog resource.

1.5 IMPACTS OF THE FISHERY MANAGEMENT PROGRAM

1.5.1 Biological and Environmental Impacts

The implementation of Amendment 1 should improve management of tautog. As proposed, the Amendment will create regional boundaries which allow the species to be managed according to localized population structures and harvesting patterns. The intent is to manage based on biology and behavior of the species including movement patterns. As indicated in tagging studies, tautog display strong site fidelity and limited north-to-south migration. If regional

management is approved then the strategies to minimize overexploitation can be tailored to the unique circumstances of each region, thereby largely eliminating the problem of management generalization that can be associated with managing tautog as a coastwide stock. Any biological impacts resulting from this document are expected to be positive.

1.5.2 Social Impacts

1.5.2.1 Recreational Fishery

Tautog is a highly prize game fish targeted by anglers fishing at natural and manmade structures. The recreational fishery accounts for approximately 90 percent of the coastwide harvest. In a 2013 National Saltwater Angler Survey, conducted by NMFS, 591 east coast anglers identified tautog as a frequently targeted species (Lovell, 2015). When asked in the survey about attitudes toward broad-level management objectives, 93% of angler respondents prefer a minimum size to some degree, and 90% prefer a bag limit. Eight-one percent of respondents identified recovering fish stocks that have been depleted as an 'extremely important' fisheries management objective. The actions proposed in this Amendment overlap with desired management approaches identified in the survey, additional proposed actions are an outcome of stakeholder discussions.

1.5.2.2 Commercial Fishery

In recent years, commercial landings accounted for up to 40% of the catch in some states, largely due to the market for live fish. Steady demand has increased the price for live tautog and has further incentivized the black market for undersized, out-of-season, or illegal quantities of tautog. There is a preference for plate sized fish up to 12 inches, which is below the 15-16 inch size limits set by states.

The proposed management changes, such as the commercial harvest tagging program, were designed with input from the law enforcement community and feedback from commercial fishermen. The intent of the program is to minimize illegal, unreported and unregulated fishing that has perforated the fishery since the 1990s. It is an attempt to eliminate the backdoor practice of selling underpriced tautog by unlicensed fishermen in the black market. Desired outcomes from this management action are higher prices for those commercial fishermen that follow established regulations and greater accountability in the commercial fishing sector.

1.5.2.3 Subsistence Fishery

A subset of illegal activity occurs among individuals and small groups harvesting fish for personal consumption or subsistence. These individuals may not even be aware they are violating specific regulations. Additional information on the subsistence fishery is not available at this time.

1.5.3 Economic Impacts

As described elsewhere in Amendment 1, the recreational component of the fishery accounts for the majority of harvest compared to the commercial harvest. In order to evaluate how dividing the current single coast-wide stock into regional stocks would affect anglers and commercial fisherman, information on how this would affect their behavior or the amount of

fish they catch is needed. For recreational anglers, the information needed would include how the number of fishing trips for tautog change, if they keep taking the same number of trips but make substitutions for target species and/or change fishing mode (private boat, shore, for-hire), and if they travel to different locations as a result. Changes in the number of fish, size of fish, and species composition would also be important aspects of how they might be impacted.

1.5.3.1 Recreational Fishery

There are no published or unpublished studies (as of 2016) that document the economic impacts or economic value of the recreational tautog fishery. Without specific information on how the proposed changes to the FMP would affect the number of recreational trips taken for tautog and/or the catch per angler, it is not possible to estimate any economic impacts or effects at this time.

However, there are a few recent socio-economic surveys and publications by the National Marine Fisheries Service, Office of Science and Technology, with limited data on anglers who fish for tautog. These may be useful to understand in general the socio-economic aspects of anglers who fish for tautog and may be useful in a future analysis of specific management options once those are better defined.

National Saltwater Angler Survey

The first of these is the 2013 National Saltwater Angler Survey that asked recreational anglers about their attitudes and preferences for recreational fishing trips, management strategies and management objectives. An analysis of the data shows that 226 anglers who responded to the survey from the North Atlantic region (Maine to Connecticut) and 365 from the Mid-Atlantic (New York to Virginia) replied they frequently targeted tautog (Lovell 2013). For this document, the data on these 591 anglers was analyzed to understand their preferences for trip characteristics and management options and objectives. In the survey, respondents were asked to rate the importance of each characteristic listed below using a five-point scale, ranging from “Extremely important” to “Not important at all” (Figure 23).

A. Catch fish
B. Catch as many fish as I can for consumption
C. Catch-and-release as many fish as possible
D. Catch a trophy-sized fish
E. Target a particular species
F. Catch the bag limit of a species I am targeting
G. Know that I will encounter abundant fish
H. Fish in an area that is not heavily congested
I. Be close to amenities such as parking, restrooms, cleaning stations, boat launches, etc.
J. See information concerning fishing regulations clearly posted
K. Have access to staff (park staff, marine operators, etc.) to answer questions or provide information
L. Have easy access to weather and tide information
M. Fish in a scenic area

N. Fish with family or friends
O. Teach others about fishing

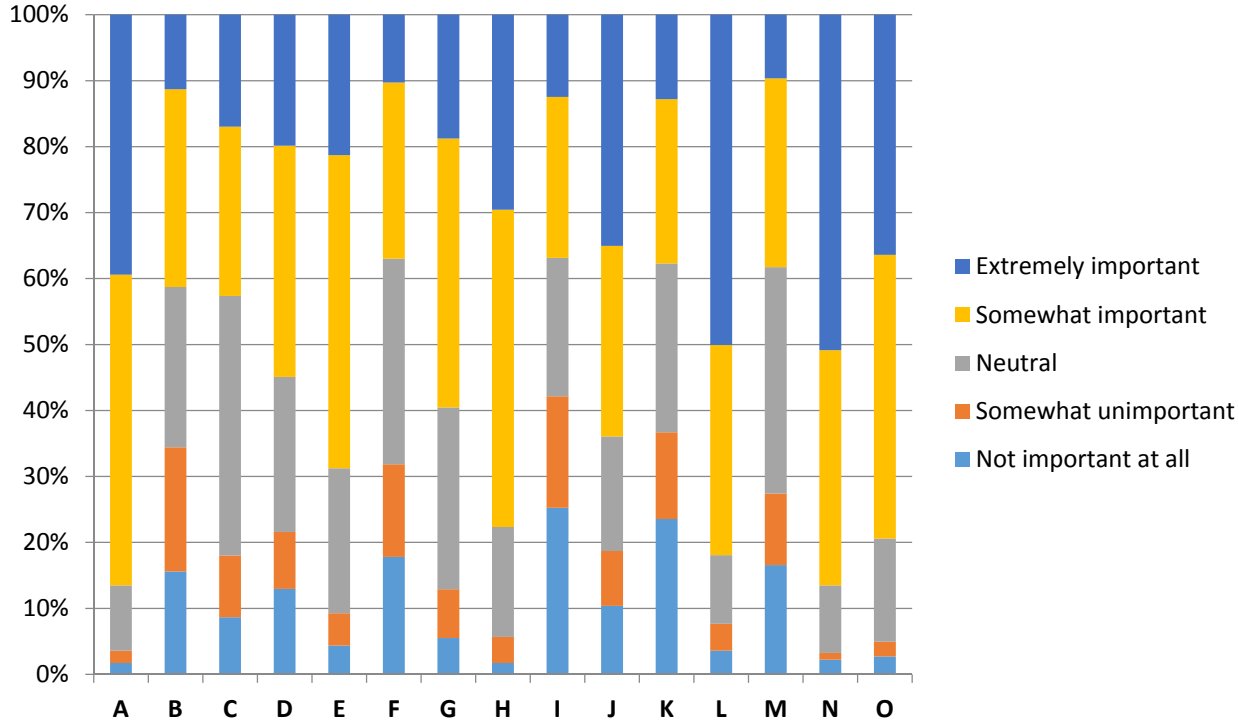


Figure 23. Fishing Trip Characteristics Important to Tautog Anglers (Maine to Virginia)

87% of the surveyed anglers fishing for tautog rated both "fishing with family or friends" and "catching fish" as important (defined as either somewhat or extremely important on the scale). Having easy access to weather and tide information was important to 82% of tautog anglers, and 78-79% rated "teach others about fishing" and "fish in an area that is not heavily congested" as important. Of concern to managers, the characteristics "catch the bag limit of a species I am targeting" was ranked as important by only 37% of anglers. In comparison to all anglers across the country as well as in the North Atlantic and Mid-Atlantic, these results are fairly consistent in terms of percentages ranking the various characteristics as important (Brinson and Wallmo 2013; Rubio et al 2014).

To help understand attitudes toward different types of management strategies, anglers were also asked to rate their preferences for a list of management strategies. Respondents rated each of a series of strategies using a five-point scale of "Strongly prefer," "Somewhat prefer," "Slightly prefer," "Do not prefer at all," and "I am unsure." Results for a select group of management strategies relevant to the proposed changes in the tautog FMP are presented in Figure 24.

- Establish minimum size limits of the fish you can keep
- Limit the total number of fish you can keep
- Increase the recreational harvest limit by decreasing the commercial harvest limit

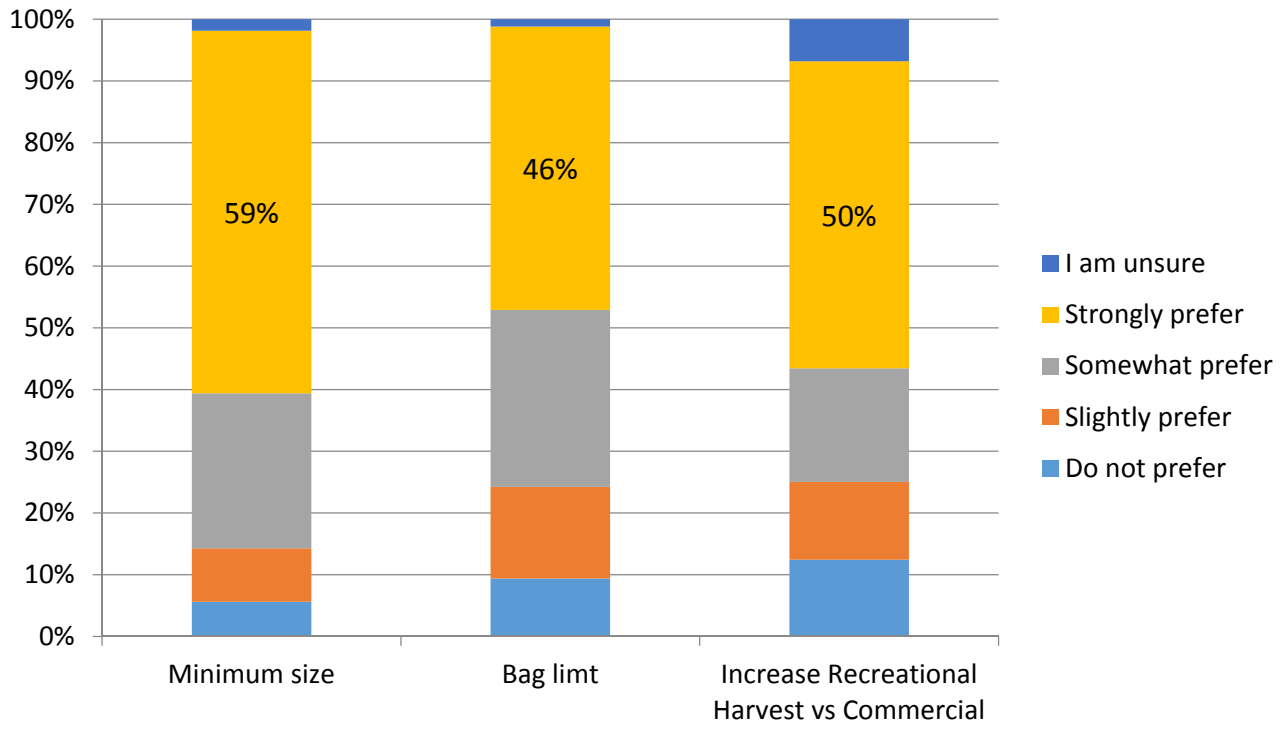


Figure 24. Management Preferences of Tautog Anglers (Maine to Virginia)

Another question the survey asked anglers included attitudes toward broad-level management objectives. Respondents were asked to rate each of several objectives using a six-point scale of "Extremely important," "Somewhat important," "Neutral," "Somewhat unimportant," "Not important at all," and "I am unsure." Results for some of the relevant objectives to the tautog FMP are presented in Figure 25.

a. Ensure that large quantities of fish are available to catch
b. Allocate some quota from commercial fisheries to recreational fisheries
c. Recover fish stocks that have been depleted

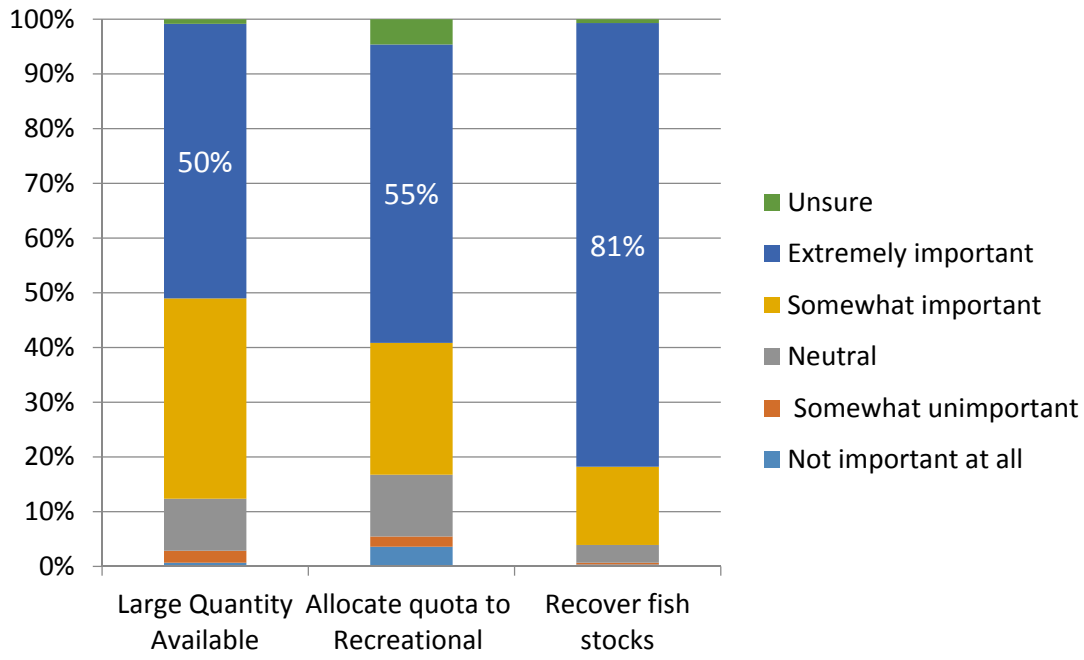


Figure 25. Preferences of Tautog Anglers (Maine to Virginia) For Different Management Objectives

Recovering fish stocks that have been depleted was extremely important to 81% of tautog anglers. Ensuring large numbers of fish to catch was ranked extremely important by 50% of tautog anglers. 55% said reallocating some of the quota from commercial to recreational anglers was extremely important, however, it is important to note the question did not ask about specific species in this context. The above responses to the survey can be useful in understanding what motivates recreational tautog anglers in general and how they may respond to changes in the tautog FMP.

Recreational Bait and Tackle Economic Survey

The most recent NMFS survey was conducted in 2014. The survey obtained information from independently owned bait and tackle stores and other independent stores selling marine recreational bait and tackle in coastal areas. Store owners were asked a series of questions on what type of bait and tackle they sold, their cost and earnings, and questions on the top species targeted by customers. The information collected was used to estimate the economic impacts of these stores to the regions.

For the North Atlantic Region, independent bait and tackle stores supported 958 jobs and contributed toward $140 million in regional economic output from sales of marine recreational bait and tackle (Hutt et al 2015). For the Mid-Atlantic region, bait and tackle stores supported 1,922 jobs and $293 million in output. In the Mid-Atlantic and New England, Bait and Tackle and Other Store owners indicated tautog (8.6%; 11.9%) was the sixth and fourth highest generators of sales for their business, respectively (Table 3). The information in this survey may be used to

analyze economic impacts to bait and tackle shops in the management areas if a clear link between changes in the tautog FMP and changes in sales of bait and tackle can be made.

Table 3. Saltwater recreational fisheries that generated the greatest sales of bait and tackle for retail stores in the Mid-Atlantic and New England as identified by store owners and/or managers. Percentages exceed 100% as respondents were asked to select the top three fisheries (Hutt et al, 2015). N is the number of store owners that participated in the survey.

Fisheries Management Region: Mid-Atlantic

	Total		Bait & Tackle Stores		Other Stores	
Fishery	**N**	**%**	**N**	**%**	**N**	**%**
Striped bass/Bluefish	118	72.4	58	76.3	60	69
Summer or Winter flounder	83	50.9	46	60.5	37	42.5
Atlantic croaker/Spot/Scup	49	30.1	19	25	30	34.5
Black seabass	16	9.8	9	11.8	7	8
Marlin/Tuna	9	5.5	9	11.8	0	0
Tautog/Triggerfish	**14**	**8.6**	**8**	**10.5**	**6**	**6.9**
Red or Black drum	10	6.1	5	6.6	5	5.7
Weakfish	10	6.1	4	5.3	6	6.9
Other	30	18.4	13	17.1	17	19.5

Fisheries Management Region: New England

	Total		Bait & Tackle Stores		Other	
Fishery	**N**	**%**	**N**	**%**	**N**	**%**
Striped bass/Bluefish	80	67.8	52	78.8	28	53.8
Summer or Winter flounder	29	24.6	22	33.3	7	13.5
Scup	21	17.8	16	24.2	5	9.6
Tautog	**14**	**11.9**	**11**	**16.7**	**3**	**5.8**
Atlantic cod	14	11.9	8	12.1	6	11.5
Atlantic mackerel	20	16.9	7	10.6	13	25
Bluefin tuna	12	10.2	6	9.1	6	11.5
Bonito	1	0.8	1	1.5	0	0
Other	23	19.5	11	16.7	12	23.1

National Marine Recreational Fishing Expenditure Survey

The 2011 National Marine Recreational Fishing Expenditure Survey provides information on mean trip expenditures by state, fishing mode, and resident status (Lovell et al 2013). The number of directed trips for tautog by state and mode can be used together with mean trip expenditure to estimate the total expenditures on tautog trips and the resulting economic impacts to the coastal states from changes in the tautog FMP. This assumes such changes would affect the number and distribution of trips across the management area. Caution is noted however, because if anglers switch to fishing for other species with no or little change in

the number, location, or type of trips taken, there will be no resulting impacts. Table 4 shows the 2014 mean expenditures by state, mode, and resident status using the 2011 estimates and inflating them to 2014 dollars using the Consumer Price Index. NMFS has developed state level economic impact models that can be used to estimate the economic impacts resulting from changes in fishing trips (Lovell et al 2013).

Aside from changes in economic impacts resulting from potential changes in the number of trips taken by anglers, data from the MRIP program on numbers of directed trip and catch of tautog could be used to develop a revealed preference model on the economic value of catching different numbers of tautog. The results can be used to show how changes in management measures would change the economic value, or benefits, anglers receive from fishing for and/or catching tautog. It would require some time to develop these models by an experienced economist.

Table 4. Mean Trip Expenditures by State, Mode, and Resident Status, 2014

State	Mode	Resident Status	Mean
Connecticut	For-Hire	Non-Resident	$151.80
Connecticut	For-Hire	Resident	$173.21
Connecticut	Private Boat	Non-Resident	$29.71
Connecticut	Private Boat	Resident	$32.03
Connecticut	Shore	Non-Resident	$13.33
Connecticut	Shore	Resident	$19.18
Delaware	For-Hire	Non-Resident	$199.34
Delaware	For-Hire	Resident	$124.56
Delaware	Private Boat	Non-Resident	$42.74
Delaware	Private Boat	Resident	$39.48
Delaware	Shore	Non-Resident	$72.52
Delaware	Shore	Resident	$30.82
Maryland	For-Hire	Non-Resident	$394.78
Maryland	For-Hire	Resident	$147.88
Maryland	Private Boat	Non-Resident	$37.12
Maryland	Private Boat	Resident	$46.55
Maryland	Shore	Non-Resident	$70.75
Maryland	Shore	Resident	$45.86
Massachusetts	For-Hire	Non-Resident	$473.54
Massachusetts	For-Hire	Resident	$178.38
Massachusetts	Private Boat	Non-Resident	$79.08
Massachusetts	Private Boat	Resident	$63.18
Massachusetts	Shore	Non-Resident	$152.17
Massachusetts	Shore	Resident	$42.20
New Jersey	For-Hire	Non-Resident	$138.41
New Jersey	For-Hire	Resident	$116.31
New Jersey	Private Boat	Non-Resident	$94.07
New Jersey	Private Boat	Resident	$58.44

State	Mode	Resident Status	Mean
New Jersey	Shore	Non-Resident	$53.49
New Jersey	Shore	Resident	$30.81
New York	For-Hire	Non-Resident	$122.19
New York	For-Hire	Resident	$165.72
New York	Private Boat	Non-Resident	$40.77
New York	Private Boat	Resident	$61.95
New York	Shore	Non-Resident	$46.92
New York	Shore	Resident	$20.90
Rhode Island	For-Hire	Non-Resident	$216.18
Rhode Island	For-Hire	Resident	$98.34
Rhode Island	Private Boat	Non-Resident	$38.50
Rhode Island	Private Boat	Resident	$42.97
Rhode Island	Shore	Non-Resident	$17.47
Rhode Island	Shore	Resident	$16.06
Virginia	For-Hire	Non-Resident	$189.54
Virginia	For-Hire	Resident	$113.05
Virginia	Private Boat	Non-Resident	$79.75
Virginia	Private Boat	Resident	$59.42
Virginia	Shore	Non-Resident	$104.20
Virginia	Shore	Resident	$27.77

1.5.3.2 Commercial Fishery

From 2009 to 2015, the states with the highest number of vessels and fisherman fishing for tautog on average are Rhode Island, Massachusetts, and New York. Table 5 shows the number of vessels, number of fishermen, total pounds, total revenue and average price per pound from 2009 to 2015 where data is available. For these vessels and fisherman, tautog is not the only species they catch. The top five species as measured in pounds for the vessels also reporting tautog were scup (#1), black sea bass (#3), longfin inshore squid (#4), and skates (#5). Tautog was second in terms of pounds. In terms of average pounds caught, the states with the highest catch are New York, Massachusetts, and Rhode Island.

Table 5. Commercial Tautog Effort by State. Confidential data has been excluded.

Year	State	Vessels	Fishermen	Landings (lbs)	Revenue	Price Per Pound
2009	MA	73	164	54,703	$137,062	$2.51
2010	MA	95	192	75,317	$210,114	$2.79
2011	MA	122	181	57,787	$179,683	$3.11
2012	MA	156	219	67,870	$212,688	$3.13
2013	MA	187	250	70,165	$236,224	$3.37
2014	MA	179	222	63,191	$230,697	$3.65
2015	MA	196	213	61,752	$268,529	$4.35

Year	State	Vessels	Fishermen	Landings (lbs)	Revenue	Price Per Pound
2009	RI	157	253	50,920	$98,854	$1.94
2010	RI	219	233	44,054	$101,427	$2.30
2011	RI	228	228	47,426	$124,862	$2.63
2012	RI	239	247	50,126	$151,008	$3.01
2013	RI	236	235	53,428	$168,471	$3.15
2014	RI	240	232	53,384	$182,347	$3.42
2015	RI	234	226	47,140	$172,694	$3.66
2009	CT	69	45	21,194	$44,178	$2.08
2010	CT	82	47	16,948	$41,842	$2.47
2011	CT	76	66	14,787	$38,693	$2.62
2012	CT	64	35	6,233	$18,501	$2.97
2013	CT	60	36	5,887	$15,950	$2.71
2014	CT	55	34	5,164	$14,647	$2.84
2015	CT	56	48	7,249	$22,774	$3.14
2009	NY	118	183	87,289	$276,169	$3.16
2010	NY	126	187	93,153	$299,080	$3.21
2011	NY	120	174	82,761	$261,467	$3.16
2012	NY	132	171	76,373	$254,907	$3.34
2013	NY	140	181	110,849	$359,138	$3.24
2014	NY	153	206	121,538	$375,909	$3.09
2015	NY	137	179	111,925	$401,668	$3.59
2009	NJ	17	16	14,591	$45,316	$3.11
2010	NJ	23	20	49,213	$122,781	$2.49
2011	NJ	24	20	45,865	$129,285	$2.82
2012	NJ	20	17	20,831	$66,577	$3.20
2013	NJ	19	17	21,999	$73,941	$3.36
2014	NJ	12	11	31,655	$101,049	$3.19
2015	NJ	15	16	17,538	$57,373	$3.27
2009	DE	8	5	2,116	$4,649	$2.20
2012	DE	5	4	1,444	$4,968	$3.44
2015	DE	4	5	2,107	$8,446	$4.01
2009	MD	13	9	1,638	$3,659	$2.23
2010	MD	11	11	1,285	$2,780	$2.16
2015	MD	7	8	1,181	$4,619	$3.91

Year	State	Vessels	Fishermen	Landings (lbs)	Revenue	Price Per Pound
2009	VA	35	15	11,132	$19,169	$1.72
2010	VA	35	10	6,081	$13,819	$2.27
2011	VA	34	9	14,590	$42,050	$2.88
2012	VA	36	10	13,870	$33,611	$2.42
2013	VA	24	8	11,776	$88,407	$7.51
2014	VA	26	9	7,545	$26,378	$3.50
2015	VA	27	23	6,937	$25,569	$3.69

1.5.3.3 Subsistence Fishery

No information exists on the subsistence fishery for tautog.

1.5.4 Other Resource Management Efforts

1.5.4.1 Artificial Reef Development/Management

Artificial reefs can enhance fish habitat, provide more access to quality fishing grounds, benefit fishermen, divers, and the economies of shore communities, and increase total biomass in a given area. Tautog rely on reef structures for protection, and reef-dependent species such as *Mytilus edulis* form a large portion of the diet of both juveniles and adults (Olla et al 1975).

Individual Atlantic states started deploying artificial habitat after the 1950s. Efforts became more formalized after the release of the 1985 National Artificial Reef Plan, which enhanced coordination and development of artificial reefs with state, interstate and federal agencies including ASMFC and the National Marine Fisheries Service. As shown in Table 6, the majority of states within tautog's distribution have state-administered artificial reef programs, and Rhode Island's artificial reef program is in development (McNamee, personal communication).

Table 6. Number of artificial reefs by state in 2016

State	# of artificial reefs inshore	# of artificial reefs offshore	Total # of artificial reefs built	Acres
Massachusetts	5	-	5	<160
Rhode Island	-	-	Artificial Reef Program in development	
Connecticut	1	-	1 no formal program	<6.4
New York	4	7	11	2,539
New Jersey	2	13	15	16,000
Delaware	8	4	12	7,080
Maryland	22	11	33	13,613
Virginia	18	5	23	487

Artificial reefs are built out of hard, durable structures such as rock, concrete, and steel, usually in the form of surplus or scrap materials (vessels, dredge rock, military vehicles, etc.). All harmful substances are removed from the material prior to deployment. Various design approaches are used for Atlantic artificial reefs. New Jersey has sunken old ships and barges to create 16,000 acres of artificial reefs. Delaware has used donated concrete for eight bay sites, and ballasted tire units and sunken ships for ocean sites. Most Maryland reefs are constructed from concrete materials of opportunity, including rubble from bridge and pier demolition projects, and reef balls built with the help of volunteers (Michael Malpezzi, MDNR, personal communication, 2016).

Some states are monitoring the impact of artificial reefs on fishery performance and biological diversity. In New Jersey, party boat fishing effort on artificial reefs increased from 3 percent in 1970 to 47 percent in 2000 in conjunction with an extensive increase in reef building efforts during that period (Figley 2001). In Maryland, volunteer angler surveys carried out on artificial and nearby natural reefs confirm that artificial reefs provide fishing experiences equivalent to the natural reefs (Michael Malpezzi, MDNR, personal communication, 2016). New and continued monitoring and research on the effects of existing artificial reef sites will be most informative for habitat-orientated species like tautog.

1.5.4.2 Bycatch

Tautog is often listed as a bycatch species in trap and pot fisheries targeting lobster and black sea bass (ASMFC 1997, Skrobe and Lee 2004, Hasbrouck et al. 2007, NEFMC et al. 2007, NEFMC et al. 2015). In the federally permitted Mid-Atlantic fish pot fishery, on average tautog accounted for 5% of harvest from 2000-2004 and 8% of harvest from 2007-2011 (Table 7). Tautog catch, as bycatch, is of value, and is often harvested and sold (Skrobe and Lee 2004). Many lobstermen target tautog when the inshore lobster fishery slows simply by using longer sets of traps without bait (ASMFC 1996, personal communication Peter Clarke, NJDEP). In a 1994 study, tautog was the second most abundant species (23% of finfish bycatch) after scup in New York's lobster pot fishery (ASMFC 1996).

Table 7. Average Landings in the Mid-Atlantic Fish Pot Fishery (Pounds)
Source: Northeast Region Standardized Bycatch Reporting Methodology (NEFMC 2007 & 2015)

Species	2000-2004	2007-2011
Tautog	49,000	56,000
Black Sea Bass	723,000	472,000
Lobster	17,000	37,000
Channeled Whelks	35,000	31,000
Eels	21,000	20,000
Other	60,000	116,000
Total	905,000	732,000

1.6 LOCATION OF TECHNICAL DOCUMENTATION FOR FMP

1.6.1 Review of Resource Life History and Biological Relationships
See Section 1.2.1
1.6.2 Stock Assessment Document
See Section 1.2.2
1.6.3 Habitat Background Document
See Section 1.4

2.0 GOALS AND OBJECTIVES

2.1 HISTORY OF PRIOR MANAGEMENT MEASURES

Prior to adoption of the Interstate FMP, tautog had been managed on a state-by-state basis. For the majority of states, tautog were largely unmanaged although some states had commercial and/or recreational regulations, such as minimum size limits, possession limits, and effort controls. An increase in fishing pressure in the mid-1980s through early 1990s, and a growing perception of the species' vulnerability to overfishing, stimulated the need for a coastwide FMP. Accordingly, in 1993 the ASMFC recommended a plan be developed as part of its Interstate Fisheries Management Program. The states of Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Delaware, Maryland Virginia, and North Carolina declared an interest in jointly managing this species through the ASMFC. The FMP was implemented in 1996, with the goals of conserving the resource along the Atlantic coast and maximizing long-term ecological benefits, while maintaining the social and economic benefits of recreational and commercial utilization.

Follwing is a brief history of tautog management activities to date:

Fishery Management Plan (FMP) (March 1996)
The FMP established a 14" minimum size limit and a target fishing mortality of F = M = 0.15. The target F was a significant decrease from the 1995 stock assessment terminal year fishing mortality rate in excess of F = 0.70, so a phased in approach to implementing these regulations was established. Northern states (Massachusetts through New Jersey) were to implement the minimum size and achieve an interim target of F = 0.24 by April 1997, while southern states (Delaware through North Carolina) had until April 1998 to do the same. All states were required to achieve the target F = 0.15 by April 1999.

Addendum I (May 1997)
In response to northern states' difficulty in achieving the interim F by their deadline, Addendum I delayed implementation of the interim F and target F for all states until April 1998 or April 2000 depending on the state. It also established *de minimis* specifications.

Addendum II (November 1999)
The 1999 stock assessment incorporated data through 1998, which included only nine months

of data under the Addendum I regulations. Given the life history of the species, the Board was concerned the assessment provided limited advice on the effects of Addendum I regulations. Addendum II further extended the deadline to achieve the F=0.15 target until April 2002. It also clarified the fishing mortality targets in the FMP with respect to individual state management program flexibility.

Addendum III (February 2002)
This addendum established a new target fishing mortality rate of $F_{target} = F_{40\%SSB} = 0.29$ and mandated states collect a minimum of 200 age samples per year.

Addendum IV (January 2007)
Addendum IV revised the target fishing mortality rate to F = 0.20, a 28.6% reduction in overall fishing mortality, and established biomass reference points for the first time. The biomass reference points were ad hoc, based on the average of the 1982-1991 SSB (target; 26,800 MT) and 75% of this value (threshold; 20,100 MT). It also required states to achieve the new target F by reductions in recreational harvest only.

Addendum V (April 2007)
Addendum V allowed state flexibility in achieving $F_{target} = 0.20$ through reductions in commercial harvest, recreational harvest, or some combination of both. A Massachusetts-Rhode Island model indicated regional F was lower than the coastwide target, therefore these two states were not required to implement management measures to reduce F.

Addendum VI (April 2011)
Addendum VI established a new F_{target} of F = M = 0.15 on the basis that stock biomass had not responded to previous F levels. The new F_{target} required states to take a 39% reduction in harvest. As in Addendum IV, a regional assessment of Massachusetts and Rhode Island demonstrated a lower regional F using ADAPT VPA model, and these states were not required to implement tighter regulations. To achieve the required harvest reduction, all other states adopted higher minimum size limits exceeding the FMP's minimum requirement of 14" in addition to other measures, such as possession limits, seasonal closures, and gear restrictions.

2.2 GOALS

If approved, Amendment 1 replaces the 1996 Tautog FMP and its addenda.

The Board is considering modifications to the goals that were enacted in 1996 to meet the current needs of the species and fishery.

Option A. Status Quo. Maintain the 1996 Goals

A. To perpetuate and enhance stocks of tautog through interstate fishery management so as to allow a recreational and commercial harvest consistent with the long-term maintenance of self-sustaining spawning stocks
B. To maintain recent (i.e. 1982-1991) utilization patterns and proportions of catch taken by commercial and recreational harvesters
C. To provide for the conservation, restoration, and enhancement of tautog critical habitat for all life history stages
D. To maintain a healthy age structure
E. To conserve the tautog resource along the Atlantic coast to preserve ecological benefits such as biodiversity and reef community stability, while maintaining the social and economic benefits of commercial and recreational utilization

Option B. Revised Goal Statement

The goal of Amendment 1 is to sustainably manage tautog over the long-term using regional differences in biology and fishery characteristics as the basis for management. Additionally, the Amendment seeks to promote the conservation and enhancement of structured habitat to meet the needs of all stages of tautog's life cycle.

2.3 OBJECTIVES

The following objectives are being considered by the Board to support the goals of this amendment:

Option A. Status Quo: Maintain the 1996 Objectives

A. To establish criteria, standards, and procedures for plan implementation as well as determination of state compliance with FMP provisions
B. To allow harvest that maintains spawning stock biomass (SSB) in a condition that provides for perpetuation of self-sustaining spawning stocks in each spawning area, SSB, size and age structure, or other measures of spawning success at or above historical levels as established in the plan
C. To achieve compatible and equitable management measures among jurisdictions throughout the fishery management unit
D. To enact management recommendations which apply to fish landed in each state, so that regulations apply to fish caught both inside and outside of state waters
E. To promote cooperative interstate biological, social, and economic research, monitoring and law enforcement
F. To encourage sufficient monitoring of the resource and collection of additional data, particularly in the southern portion of the species range, that are necessary for development of effective long-term management strategies and evaluation of the management program. Effective stock assessment and population dynamics modeling require more information on the status of the resource and the

biology/community/ecology of tautog than is currently available, in particular to facilitate calculation of F and stock trends

G. To identify critical habitats and environmental factors that support or limit long-term maintenance and productivity of sustainable tautog populations
H. To adopt and promote standards of environmental quality necessary to the long-term maintenance and productivity of tautog throughout their range
I. To develop strategies that reduce fishing mortality, restore stock size composition and the historical recreational/commercial split, consider ecological and socio-economic impacts.
J. To identify problems associated with the offshore fishery. Compatible regulations between the states and the EEZ are essential

Option B. Remove Objective A and B from Section 2.3 of the 1996 FMP

These objectives are inherent within the FMP or included in other objectives, and therefore redundant.

Option C. Modify Objective C in Section 2.3 of the 1996 FMP to the following:

- Adopt compatible management measures among states within a regional management unit

Option D. Combine Objectives D and J in Section 2.3 of the 1996 FMP to the following:

- Encourage compatible regulations between the states and the EEZ, which includes enacting management recommendations that apply to fish landed in each state (i.e., regulations apply to fish caught both inside and outside of state waters).

Option E. Combine Objectives G and H in Section 2.3 of the 1996 FMP to the following:

- Identify important habitat and environmental quality factors that support the long-term maintenance and productivity of sustainable tautog populations throughout their range.

Option F. Modify Objectives I in Section 2.3 of the 1996 FMP to the following:

- Develop and implement management strategies to rebuild tautog stocks to sustainable levels (reduce fishing mortality to the target and restore spawning stock biomass to the target), while considering ecological and socio-economic impacts.

Option G. Add the following objective to Section 2.3 of the 1996 FMP:

- Work with law enforcement to minimize factors contributing to illegal harvest.

Option H. Accept Options B through G into Section 2.3 of the 1996 FMP:

This option will insert all modifications identified under Options B through G into Section 2.3. If adopted, the objectives will be:

- Develop and implement management strategies to rebuild tautog stocks to sustainable levels (reduce fishing mortality to the target and restore spawning stock biomass to the target), while considering ecological and socio-economic impacts.
- Adopt compatible management measures among states within a regional management unit
- Encourage compatible regulations between the states and the EEZ, which includes enacting management recommendations that apply to fish landed in each state (i.e., regulations apply to fish caught both inside and outside of state waters).
- Identify important habitat and environmental quality factors that support the long-term maintenance and productivity of sustainable tautog populations throughout their range.
- Promote cooperative interstate biological, social, and economic research, monitoring and law enforcement
- Encourage sufficient monitoring of the resource and collection of additional data, particularly in the southern portion of the species range, that are necessary for development of effective long-term management strategies and evaluation of the management program.
- Work with law enforcement to minimize factors contributing to illegal harvest.

2.4 SPECIFICATION OF A MANAGEMENT UNIT

The management unit consists of all coastal states from Massachusetts through Virginia. The management unit is defined as all U.S. territorial waters of the northwest Atlantic Ocean, from the shoreline to the seaward boundary of the exclusive economic zone, and from US/Canadian border to the southern end of the species range. Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Delaware, Maryland, Virginia, the National Marine Fisheries Service and the U.S. Fish and Wildlife Service have declared an interest in tautog.

2.5 BIOLOGICAL REFERENCE POINTS

Threshold reference points are the basis for determining stock status (i.e., whether overfishing is occurring or a stock is overfished). When the F exceeds the F-threshold, then overfishing is occurring; the rate of removal of fish by the fishery exceeds the ability of the stock to replenish itself. When the reproductive output (measured as spawning stock biomass or population fecundity) falls below the biomass-threshold, then the stock is overfished, meaning there is insufficient mature female biomass (SSB) or egg production (population fecundity) to replenish the stock.

Reference points are recalculated during an update and benchmark stock assessment, see the latest stock assessment for reference points and stock status determination (ASMFC 2016b). In 2016, the Technical Committee recommended maximum sustainable yield based reference points and spawning potential ratio based reference points, depending on the region, based on data availability. The proposed biological reference tables are highlighted in Tables 8 and 9, and the two types of reference points are summarized below.

Maximum sustainable yield (MSY) based reference points
MSY-based reference points are estimated from ASAP, which uses a combination of spawning potential ratio, yield-per-recruit (YPR), and the stock-recruitment relationship to calculate the SSB_{MSY} and F_{MSY}. 75% F_{MSY} is calculated by projecting the population forward assuming the same stock-recruitment (S-R) relationship and finding the fishing mortality (F) that maintains the population at 75% SSB_{MSY}. SSB X% is calculated by projecting the population forward while fishing at F X%SPR with recruitment randomly drawn from the observed historical recruitment. MSY-based reference points are used in the LIS region because it has a longer time-series.

Spawning potential ratio (SPR) based reference points
SPR-based reference points estimate the reproductive potential of a fished stock relative to its unfished condition. SPR based reference points are used in the MARI, NJ-NYB and DelMarVa regions.

Table 8. Tautog Spawning Stock Biomass Status by Region When Compared to Proposed Reference Points. Source: ASMFC Stock Assessment Update, 2016

	Proposed SSB Reference Points			Status as of the 2016 Assessment	
Stock Region	**MSY or SPR**	**SSB Target (mt)**	**SSB Threshold (mt)**	**SSB 2015 (mt)**	**Stock Status**
Massachusetts – Rhode Island	**SPR**	**2,684**	**2,004**	**2,196**	**Stock Not Overfished**
Long Island Sound	**MSY**	**2,865**	**2,148**	**1,603**	**Overfished**
New Jersey – New York Bight	**SPR**	**3,154**	**2,351**	**1,809**	**Overfished**
Delaware – Maryland – Virginia	**SPR**	**1,919**	**1,447**	**621**	**Overfished**
Coastwide	**MSY**	**14,944**	**11,208**	**6,014**	**Overfished**
	SPR	**9,448**	**7,091**	**6,014**	**Overfished**

Table 9. Tautog Fishing Mortality Status by Region When Compared to Proposed Reference Points. Source: ASMFC Stock Assessment Update, 2016

	Proposed F Reference Points			Status as of the 2016 Assessment	
Stock Region	MSY or SPR	Fishing Mortality Target	Fishing Mortality Threshold	3-year Average (2013-15)	Stock Status
Massachusetts – Rhode Island	SPR	0.28	0.49	0.23	Overfishing Not Occurring
Long Island Sound	MSY	0.28	0.49	0.51	Overfishing
New Jersey – New York Bight	SPR	0.20	0.34	0.54	Overfishing
Delaware – Maryland – Virginia	SPR	0.16	0.24	0.16	Overfishing Not Occurring
Coastwide	MSY	0.17	0.24	0.38	Overfishing
	SPR	0.25	0.43	0.38	Overfishing Not Occurring

Option A. Status Quo - Reference Points can be Modified via a Management Document

The Tautog Technical Committee or Stock Assessment Subcommittee can recommend alternative reference points (i.e. other than MSY or SPR), as long as modifications to the status determination criteria, and their associated values, are the result of the most recent peer-reviewed stock assessments for tautog. In response, the Board may initiate a management document to incorporate the new, peer-reviewed stock status determination criteria.

Option B. Reference Points can be Modified via Board Action (i.e., Management Document Not Required)

The Tautog Technical Committee or Stock Assessment Subcommittee can recommend alternative reference points (i.e. other than MSY or SPR), as long as modifications to the status determination criteria, and their associated values, are the result of the most recent peer-reviewed stock assessments for tautog. In response, the Tautog Management Board may allow for the incorporation of new, peer-reviewed stock status determination criteria, when available, through Board action (at a Board Meeting).

Scientific advice, with respect to status determination criteria modifications, could follow three scenarios. First, the peer-review panel may reach consensus with respect to maintaining the current definitions of status determination criteria. There may be updates to the values associated with those same definitions based on the input of more recent (i.e., additional year's data) or updated information as well; however, the Board is not required to undertake any specific action when this occurs, as using the updated values is implied in this provision of the FMP. In this case the scientific advice can then move forward such that management advice can be developed.

Under the second potential scenario for scientific advice, the peer-review panel can recommend changes or different definitions of the status determination criteria. If the panelists reach consensus as to how these status determination criteria should be modified or changed then the scientific advice can move forward such that management advice can be developed. Under these first two potential scenarios, consensus has been reached and therefore the scientific advice moving forward to the Section's management advisory groups should be clear.

The third potential scenario is the peer review scientific advice with respect to the incorporation to status determination criteria are split (consensus is not reached) or uncertain recommendations are provided (weak consensus). The scientific advice provided by the reviewers may be particularly controversial. In addition, the scientific advice may not be specific enough to provide adequate guidance as to how the maximum fishing mortality threshold and/or minimum stock size threshold should be defined or what resulting management advice should be developed from these changes. Under these circumstances, the Board may engage their TC to review the information and recommendations provided by the peer-review group. Based on the terms of reference provided to the TC, they may prepare a consensus report clarifying the scientific advice for the Board as to what the status determination criteria should be (e.g., modify, change, or maintain the same definitions). At that point the scientific advice on how the status determination criteria should be defined will be clear, and can move forward such that management advice can be developed.

2.6 DEFINITION OF OVERFISHING AND OVERFISHED

Overfishing is defined relative to the rate of removals from the population as determined by the fishing mortality on the stock. The level of spawning stock biomass in a stock as the result of fishing mortality is the basis for determining if a stock has become overfished. A biomass target or threshold determines the condition of the stock whereas the mortality rate determines how fast the population is moving toward achieving the appropriate level of biomass.

2.7 MAINTENANCE OF STOCK STRUCTURE

2.7.1 Fishing Mortality (F) Target

Option A. Status quo

Coastwide fishing mortality cannot exceed F_{target}=0.15

Option B. Managing to the Regional Target F

The Management Board will evaluate the current estimates of F, as determined by the most recent stock assessment, with respect to its regional reference points (Section 2.5) before proposing any additional management measures. If the current F exceeds the regional threshold level (overfishing), the Board will take steps to reduce F to the regional target level; if current F exceeds the regional target, but is below the regional threshold, the Board should consider steps to reduce F to the regional target level. If current F is below the regional target F, then no action would be necessary to reduce F. At this time, the only way to assess the progress towards achieving the regional target F is through future stock assessments.

Sub-option B1. No time requirement
If the current F exceeds the regional threshold level (overfishing), the Board must take corrective action within a reasonable amount of time.

Sub-option B2. Board action within One Year
If the current F exceeds the regional threshold level (overfishing), the Board must initiate corrective action, via a management document, within one year of receiving the overfishing stock status. Alternative management measures must be implemented in the second year. Each region and/or state must identify specific measures (e.g., possession limit, minimum size and seasonal closures, quota, etc.) to achieve necessary harvest reductions (if applicable) in the management document.

Sub-option B3. Board Action within Two Years
If the current F exceeds the regional threshold level (overfishing), the Board must initiate corrective action, via a management document, within two years of receiving the overfishing stock status. Alternative management measures must be implemented by the third year. Each region and/or state must identify specific measures (e.g., possession limit, minimum size and seasonal closures, quota, etc.) to achieve necessary harvest reductions (if applicable) in the management document.

The Board can codify the level of risk for the TC to use when developing alternative management measures to achieve the reference points. The chosen probability impacts the percent reduction necessary.

Option A. Status Quo.
The Board will select the probability of achieving F Target when modified management measures are necessary.

Option B. 50% Probability of Achieving F Target
Management measures will be developed based on at least a 50% probability of achieving F Target. For example, the harvest reductions presented in this document have a 50% probability of achieving F Target by 2021.

2.7.2 F Reduction Schedule

If F exceeds the regional threshold level (overfishing), the Board will take corrective action, as described under *Section 2.7.1.* The Board will provide the Technical Committee with a timeframe in which F must be brought down to the regional target level using harvest reductions. The Technical Committee will then develop short-term projection scenarios to determine the constant harvest levels necessary to achieve the regional F target within X years.

The following management options refer to the harvest reduction timeframe:

Option A. Status Quo
Draft Amendment 1 does not specify a time frame to reduce fishing mortality to the regional target F level. The time frame will be established when the Board initiates a harvest reduction management response.

Option B. Three Years
Fishing mortality will be reduced to the regional target F level in a time frame that is no longer than 3 years.

Option C. Five Years
Fishing mortality will be reduced to the regional target F level in a time frame that is no longer than 5 years.

2.7.3 Stock Rebuilding Target

The Management Board will evaluate the current estimates of SSB with respect to its regional reference points (Section 2.5) before proposing any additional management measures. If the current SSB is below the regional threshold level, the Board may take steps to increase SSB to the regional target level (Section 2.7.4); if current SSB is below the regional target, but above the regional threshold, the Board may consider steps to increase SSB to the regional target level. If current SSB is above the regional target SSB, then no action would be necessary to increase SSB.

2.7.4 Stock Rebuilding Schedule

Option A. Status Quo (from Addendum IV)
No required management responses if SSB is below the threshold level.

Option B. A Stock Rebuilding Schedule can be Developed via an Addendum
The Management Board will evaluate the current estimates of SSB with respect to the regional reference points (Section 2.5). The Board can initiate a regional SSB rebuilding plan via an addendum (Section 4.12).

Option C. A Stock Rebuilding Schedule can be Developed via an Addendum, Not to Exceed 10 Years
The Management Board will evaluate the current estimates of SSB with respect to the regional reference points (Section 2.5). The Board can initiate a regional SSB rebuilding plan via an addendum (Section 4.12). The only limitation imposed under Amendment 1 is that the rebuilding schedule is not to exceed 10 years.

2.8 RESOURCE COMMUNITY ASPECTS

Tautog are an important recreational species for fishermen and a valuable resource in the live commercial market.

2.9 IMPLEMENTATION SCHEDULE

As part of the final approval of Amendment 1, the Management Board will establish an implementation schedule.

3.0 MONITORING PROGRAM SPECIFICATIONS/ELEMENTS

3.1 STOCK ASSESSMENT

A tautog stock assessment will be performed every five to seven years, or sooner if necessary. The technical committee will meet to review the stock assessment and all other relevant data sources. The stock assessment report shall follow the general outline as approved by the ISFMP Policy Board for all Commission-managed species. In addition to the general content of the report as specified in the outline, the stock assessment report will also address the specific topics detailed in the following sections.

3.1.1 Assessment of Annual Recruitment

Annual recruitment of tautog will be estimated by examination of a variety of data sources. The first is the estimate of recruitment from the model. Second will be the examination of various fishery-independent data sources, including the juvenile abundance indices that are integrated in to the statistical modeling process. Although many of these surveys are not designed to specifically target tautog, continued examination of these surveys in the future is worthwhile. In addition, surveys designed to specifically monitor tautog abundance along the coast are needed, including the use of gears that are more appropriate for structure oriented species.

3.1.2 Assessment of Spawning Stock Biomass

Spawning stock biomass (SSB) will be estimated from the model every five to seven years or sooner if necessary. Model estimates will be used for evaluating stock status versus the approved reference points.

3.1.3 Assessment of Fishing Mortality Target and Measurement

Fishing mortality (F) rates will be estimated by the model every five years or sooner, if necessary. Fishing mortality will be estimated for each age-class estimated by the model, but the metric used for comparison to the reference point values will be full F, or the comprehensive fishing mortality rate for all ages of the entire regional stock. Because of the inherent variability in some of the important data sources for the model (namely recreational catch estimates), a three-year running average of F should be developed and used as the reference estimate for the current state of the stock. Terminal year estimates for tautog generated by the model are subject to variability as additional data are added. Therefore, terminal year estimates may not accurately depict current conditions. The three-year running average is deemed to be more reflective of overall trends in fishing mortality and will reduce the risk of implementing management measures based on a false terminal year signal.

3.1.4 Assessment of Age Structure

Age structure will be estimated by the model every five to seven years or sooner, if necessary. Age structure will be estimated by the model, and is based off of the biological sampling done in each state, so is a good representation of the population structure in each region. Because of the inherent variability of age data it is important to use the model estimated age structure as the model synthesizes multiple sources of information to produce its estimates of numbers and weight at age, and therefore is accounting for some of this variability in its calculations. Additionally samples available for age analysis are affected by things such as the selectivity of the fisheries operating on the stock, which is another dynamic the model can account for in its estimates. As opposed to other population metrics, the population age structure can be used as an indicator of a healthy population if the age structure is robust and spans multiple ages including some of the oldest ages, and can also indicate when a population is becoming stressed as older ages are truncated or as there are multiple runs of low recruitment. Age structure may not immediately necessitate a management action, but can be viewed to preempt future problems in the population.

3.2 SUMMARY OF MONITORING PROGRAMS

In order to achieve the goals and objectives of Amendment 1, the collection and maintenance of quality data is necessary.

3.2.1 Catch and Landings Information

3.2.1.1 Recreational Catch and Effort Data Collection

Tautog is predominantly a recreationally caught species, with anglers accounting for about 90% of landings coastwide. The Marine Recreational Fisheries Statistics Survey (MRFSS) contains estimated tautog catches from 1981-2003 and the Marine Recreational Information Program (MRIP) contains estimated tautog catches from 2004 - present.

Recreational effort data is collected through phone surveys, but this will fully transition to mail surveys by 2018. Recreational catch data is collected through an access-site intercept survey. Interviewers routinely sample for biological data during angler intercepts by collecting length and weight measurements when possible. Sampling during night time and accounting for zero-

catch trips are conducted to more accurately capture fishing behaviors. MRIP also leverages logbook reporting and tournament sampling to improve quality of data on the distinct for-hire fleet.

Tautog are not well-sampled by the MRFSS/MRIP program, resulting in higher percent standard errors (PSEs, approximately 20-25% in recent years at the regional level) and large year-to-year swings in catch estimates, often driven by small numbers of intercepts. When disaggregated by state, PSEs for the MRFSS/MRIP estimates of harvest and releases were generally high (>0.30), indicative of the low number of intercepts obtained by survey interviewers. Recreational catch information can be downloaded at: http://www.st.nmfs.noaa.gov/st1/recreational/queries/.

The recreational tautog fishery occurs throughout the year. The majority of the landings are captured through MRIP, which is administered by the National Marine Fisheries Service. However, MRIP does not sample landings during January and February (Wave 1). This amendment recommends the states initiate a sampling program to estimate the recreational harvest of tautog during January and February.

3.2.1.2 Commercial Catch and Effort Data Collection

The ASMFC, NMFS, U.S. Fish & Wildlife Service, the New England, Mid-Atlantic, and South Atlantic Fishery Management Councils, and all the Atlantic coastal states have developed a coastwide fisheries statistics program, known as the Atlantic Coastal Cooperative Statistics Program (ACCSP). All harvesters and dealers are required to report a minimum set of standard data elements by the 10th of the following month (refer to the ACCSP Program Design document for details, http://www.accsp.org/data-collectionstandards). Landings are reported to NMFS and available online at http://www.st.nmfs.noaa.gov/commercial-fisheries/index.

Harvesters are required to report all commercial trips regardless of catch. Trips that yield no catch are still considered trips. Therefore, all data elements for effort must be reported. Dealers are required to submit monthly negative, or no activity, reports in the states where they are licensed. A single negative report may be submitted in advance to cover multiple negative reporting periods. Harvesters with no reported commercial landings during the previous license period are required to certify that fact at the time of license renewal.

New Jersey has a limited access tautog commercial fishery. As of 2016, there are 40 directed fishery and 22 non-directed fishery permittees in New Jersey. All permittees are required to submit monthly reports identifying tautog landings by day, gear, and location, as well as any bycatch.

3.2.2 Biological Information

3.2.2.1 Fishery Dependent Information—Biological Sampling from the Recreational Fishery
Length and weight samples are collected from the recreational fishery through MRIP. As a less commonly encountered species, sample sizes are often low, and average approximately 350-500 intercepts per year depending on the region.

In addition, states have dedicated short term sampling programs for specific fisheries in New York (head boat mode), New Jersey (head boat and shore mode), and Virginia (a directed fishing mortality study) and in some states that have a significant head boat or shore mode component to their recreational tautog catch. Most state's age samples come from a combination of state-run recreational, commercial and fisheries independent surveys.

In 2004, MRIP implemented observers on headboats to collect lengths of released alive fish (Type 9 measurements). Prior to 2004, the only information on the size of released fish came from the American Littoral Society's (ALS') volunteer angler tagging program, which provides lengths of fish that anglers report they have released alive. These two data sources provide the length frequency information used to develop the catch-at-age for released fish.

Wave 1 Sampling
Historically, only about five percent of the annual recreational catch on the Atlantic and Gulf coasts is taken during Wave 1 (Jan/Feb). Costs to sample these months are very high due to low fishing activity. With a few exceptions the recreational statistics program (MRFSS/MRIP) has not collected data in Jan/Feb on the Atlantic coast north of Florida since 1980.

3.2.2.2 Fishery Independent Information—Biological Sampling Program
All states in the stock unit are required to collect a minimum of 200 age and length samples annually (five fish per centimeter), within the range of lengths commonly caught by the fisheries. Specific sources are not mandated, therefore most states fulfill their obligations through a combination of fishery-dependent and fishery-independent sampling. This intent of this requirement, imposed in 2002, was to collect data necessary to support regional assessments and/or regional approaches to management. A summary of data collection efforts should be included in the annual compliance report.

The state marine fisheries agencies from Massachusetts through New Jersey conduct fisheries independent surveys that encounter tautog to record biological information such as age, length, sex, weight, and some measures of maturity. As shown in Table 10, data availability varies by region; northern states have more data from the earlier parts of the time series, when older, larger fish were present in the samples. The more southern states lack data from fishery-independent sources and thus have limited numbers of samples of the youngest, smallest fish.

Table 10. Ongoing fishery independent surveys, as of 2016

State	Areas Surveyed	Survey Type	# of Survey Stations	Dates of Survey
MA	MA territorial waters	Trawl	1 station per 19 square nautical miles	May and September
RI	Narragansett Bay	Trawl	13 stations per month	June through October
	Narraganset Bay, Rhode Island Sound and Block Island Sound	Trawl	44 stations	Spring (April-May) Fall (Sept/October)
	Narragansett Bay Beach	Seine	18 stations per month	June through October
	Coastal Ponds	Seine	24 stations in 8 coastal ponds per month	May through October
	Narragansett Bay	Trap	10, 5 pot trawls set per month	April through October
CT	Long Island Sound (CT and NY waters)	Trawl	40 stations per month	Spring (April-June) Fall (Sept-Oct)
NY	Peconic Bay	Trawl	16 stations per week	May through October
	Western Long Island Sound (Little Neck, Manhasset Bay, Jamaica Bay)	Seine	5-10 sites, semimonthly	May through October
	Long Island Sound	Trap	35 stations per week	May through October
NJ	Nearshore ocean waters between Cape May and Sandy Hook	Trawl	30 tows in Jan; 39 tows per month in Apr, Jun, Aug & Oct	Jan, Apr, June, Aug & Oct
DE	Fisheries independent surveys do not collect tautog in quantities needed for monitoring purposes			
MD	Fisheries independent surveys do not collect tautog in quantities needed for monitoring purposes			
VA	Fisheries independent surveys do not collect tautog in quantities needed for monitoring purposes			

3.2.3 Social Information

No ongoing sociological data collection or monitoring is planned. Anecdotal information and insight on the fishery and regulatory changes are provided by the Tautog Advisory Panel, which

maintains active participation. ACCSP is currently developing standards for collecting sociological data in all fishing sectors.

3.2.4 Economic Information

Currently there are no programs designed specifically to collect economic data pertaining to the tautog fishery. The ACCSP is currently developing standards for collecting economic data in all fishing sectors. See Section 1. 5.3 for a review of economic information that references tautog, but is not designed specifically for the tautog fishery.

3.2.5. Observer Program

As a condition of state and/or federal permitting, vessels are required to carry at-sea observers when requested. ACCSP currently has at-sea observer programs modeled after the NOAA Fisheries National Observer Program, adopting their standards and training protocols. A minimum set of standard data elements is defined through the ACCSP for biological or bycatch sampling data (refer to the ACCSP Program Design document for details: http://www/accsp.org/programdocument.htm#prog).

Observer data obtained from the Northeast Fisheries Observer Program for the years 1989-2012 indicates the overall sample size of observed trips that either retained or discarded tautog was low (Table 11 and Table 12). The data represents estimates of primarily incidental catch, not targeted tautog trips. Length sampling was also inconsistent and had a low sample size by year, but where available showed that discarded fish were smaller on average than retained fish (ASMFC 2015).

Table 11. Sample size of gear of observed commercial trips that caught tautog (1989-2012)

Gear	# of Trips
Gillnet	710
Otter Trawl	604
Scallop Dredge	23
Fish pot/trap	19
Longline	6
Lobster pot/trap	4
Scottish Seine	1
Troll Line	1

Table 12. Sample size by state of observed commercial trips that caught tautog (1989-2012)

State	# of Trips
ME	2
NH	9
MA	456
RI	620
CT	7
NY	59
NJ	113
DE	1
MD	43
VA	47
NC	11

Discarded-to-observed ratios from the observer data were supplemented with Vessel Trip Report (VTR) data for some gears and regulatory periods when sample size was less than ten observed trips. VTR data are self-reported by fishermen and are not considered as reliable as observer data. Overall there is high uncertainty in the estimates of commercial discards, and they are a small component of total removals of tautog. In addition, observer data is provided by vessels that hold federal permits, therefore the information presented is incomplete because it does not include data from fishermen with state permits only.

As an example of a program that could benefit our understanding of tautog and improve fishery dependent data collection for this species, in 2008, New Jersey began a collaboration with ACCSP personnel for an at-sea monitoring and sampling program targeting both the recreational party/charter boat and commercial fisheries for various species including tautog. Through 2014, data has been collected from this program on over 4,000 tautog (harvest and discard) sampled on nearly 200 trips targeting tautog. Programs such as these are an important source of valuable fisheries dependent data, and their continuation and expansion should be encouraged beyond New Jersey. In particular, a focus on observer information in recreational and commercial fisheries could provide robust estimates of discards (abundance, weights, and lengths) where there are currently gaps.

3.3 STATE TAGGING PROGRAMS

The Commission's Interstate Tagging Committee (ITC) was created in 1999 to improve the quality and utility of fish tagging data. A subcommittee of ITC members with expertise in tagging program design was established to review and certify interested tagging programs. In addition, it serves as a technical resource for jurisdictions other than the ASMFC, including private, non-profit tagging groups who plan to tag tautog. Protocols have been developed by the Committee as a source of information, advice and coordination for all Atlantic coast tagging programs; more information can be found at www.fishtag.info.

There are tautog tagging programs in the waters of Massachusetts, Maryland, and Virginia. The methods used to capture, tag, and track recaptures are described below.

Massachusetts
Massachusetts Division of Marine Fisheries tagged adult tautog using Floy internal anchor tags (model # FM-84). Tag anchors were implanted into the abdominal cavity, on the left side of fish just ventral and posterior to the pectoral fin apex. Tag number, total fish length in mm and sex was recorded for each fish, along with the latitude and longitude of the release point. Sex was determined by external examination of prominent morphological features. Subsequent recapture information on total length, recapture site, capture method, catch disposition (released, retained) was solicited from tag returnees.

Release and recapture sites were plotted on MapTech chart facsimiles for calculation of predicted straight line travel distance and travel vectors. Daily growth intervals were calculated using the difference between initial capture length and recapture length divided by the days at large, and compared to growth intervals of similar aged fish from the annual DMF Age and Growth Study.

Maryland
Tautog tagging in Maryland and adjacent federal waters is conducted by volunteer anglers for the American Littoral Society (ALS). A yellow dorsal loop tag with the serial number is applied to the fish behind the dorsal fin (Figure attached). Information on the area of capture and release, date and fish size is sent to the ALS. ALS tagging began in 1982 and continues today throughout a number of the Atlantic states, including Maryland. There are about 8,000 records available for tautog tagged in Maryland. There is no specific tagging design, tags are applied to fish on ad hoc basis. No tagging is conducted by the MD Department of Natural Resources.

Virginia
The Virginia Game Fish Tagging Program is a cooperative program of the Virginia Saltwater Fishing Tournament (Marine Resources Commission) and VIMS Marine Advisory Program. Initiated in 1995, it has been funded primarily by Saltwater Recreational Fishing License Funds and matching VIMS funds. This program provides annual training and enables a corps of ~200 experienced anglers to direct tagging effort on select target species important to VA's marine recreational fisheries. Through 2014, this program's database (used by researchers, fishery managers, anglers, etc.) includes over 240,000 records for fish tagged and over 25,900 fish recapture records (an overall >11% recapture rate). There are ten target species: black and red Tautog Stock Assessment Report 34 drum, black sea bass, cobia, flounder, gray triggerfish, sheepshead, spadefish, speckled trout, and tautog. There have been 17,705 tautog tagged since 1995 with 2,692 recaptures through 2013.

3.4 BYCATCH REDUCTION
The extent of bycatch in the tautog fishery is minimized through gear restrictions including pot and trap degradable fasteners to reduce the mortality of fish in lost or abandoned pots or traps, see Section 4.5. In addition, New York has prohibited the possession of tautog caught using fish pots or traps, unless there is one circular vent measuring 3 1/8 inch opening diameter.
States have implemented other gear restrictions and modifications to reduce overall bycatch in

pots and traps that indirectly benefit tautog. Escape vent provisions mandated to reduce the catch of undersized lobster, black sea bass and scup have likely allowed juvenile tautog to escape. However, as the minimum sizes for tautog are larger than those for the other species, some adult tautog may be too large to fit through these escape panels. Increasing the size of the escape panels to accommodate the larger size of the tautog may increase the rate of escapement for other species, rendering the utilization of such pots unfeasible for commercial fishing. Research into retention of tautog along with the other associated species harvested in lobster/fish pots using varying sizes of escape panels may be informative to determine a commercially feasible maximum.

Several bycatch reduction devices have been researched for trawl nets, a gear involved in the harvest of tautog in the more northern states along the Atlantic coast. These devices utilize escape panels of larger mesh, grills allowing escape of smaller fish, or the use of different color net material to increase the selectivity of the nets (Glass 2000). Investigations on the behavior of tautog to trawl gear may be informative toward the possible utilization of these devices in the trawl fishery.

3.5 HABITAT MONITORING PROGRAM

To enhance habitat for reef-associated fish and invertebrates, especially in the relatively featureless sand bottoms typical of ocean waters south of New England, artificial reefs have been created along the Atlantic coast, see Table 6. The construction of wide arrays of artificial reef sites reduce habitat fragmentation and act as networks supporting migratory movements of structure dependent species (Steimle and Zetlin 2000).

4.0 MANAGEMENT PROGRAM IMPLEMENTATION

4.1 REGIONAL BOUNDARIES

Option A. Status Quo – Coastwide Management

Currently, tautog are managed on a coastwide basis. If *Option A. Status Quo* is chosen then this section will be removed. The coastwide management unit is summarized under Section 2.4.

Option B. Regional Management

The Board reviewed multiple regional approaches and stock assessment analyses prior to proposing a four-region approach (Table 13). This option includes a sub-option to delineate the Long Island Sound boundary.

In the 1996 FMP, the document notes “there are apparent regional differences in the tautog fishery”, but did not specify regional boundaries due to limited biological data. In the 2015 Benchmark Stock Assessment, the TC identified a regional structure based on life history information, fishery characteristics, and data availability. Tagging data suggest strong site fidelity across years with limited north-south movement, although they undergo seasonal inshore-offshore migrations in the northern end of their range. Based on the analyses of

biological and fisheries information, the TC determined the "coastwide" stock unit is inappropriate.

Draft Amendment 1 proposes delineating the stock into four regions due to differences in biology and fishery characteristics, as well as limited coastwide movement (Table 13 and Figures 26-30). Regional management is likely to reduce the risk of overfishing and acts upon prior research recommendations. The TC can recommend alternative regional boundaries as more data become available. In response, the Board may adjust the regional boundaries via *Adaptive Management, Section 4.12.*

Table 13. Four-Region Management Approach

1) Massachusetts – Rhode Island
2) Long Island Sound (CT and NY LIS)
3) New Jersey – New York Bight (NJ and NY South Shore)
4) Delaware – Maryland – Virginia

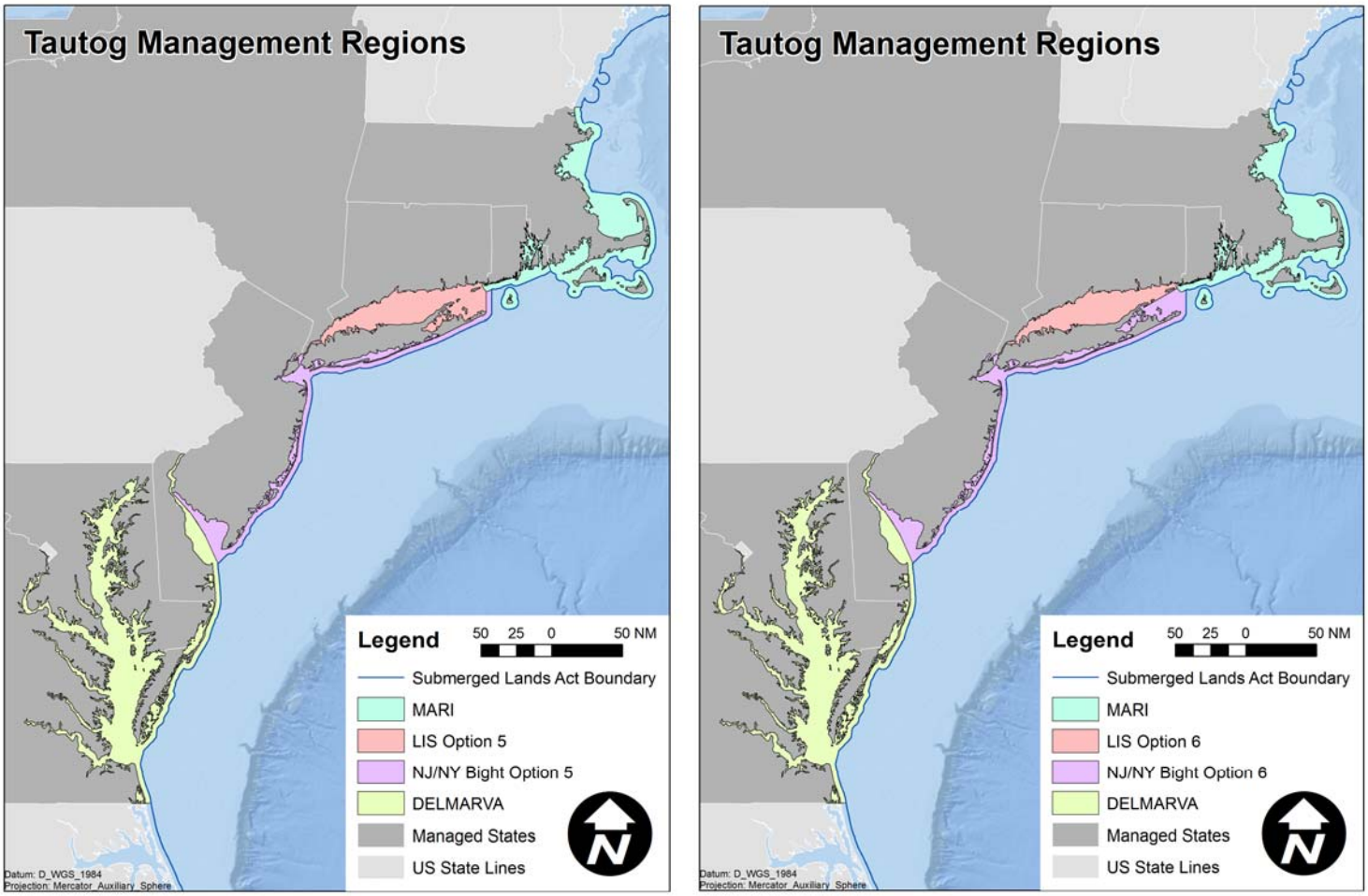


Figure 26. Proposed Tautog Management Regions; Showing Different LIS Boundaries

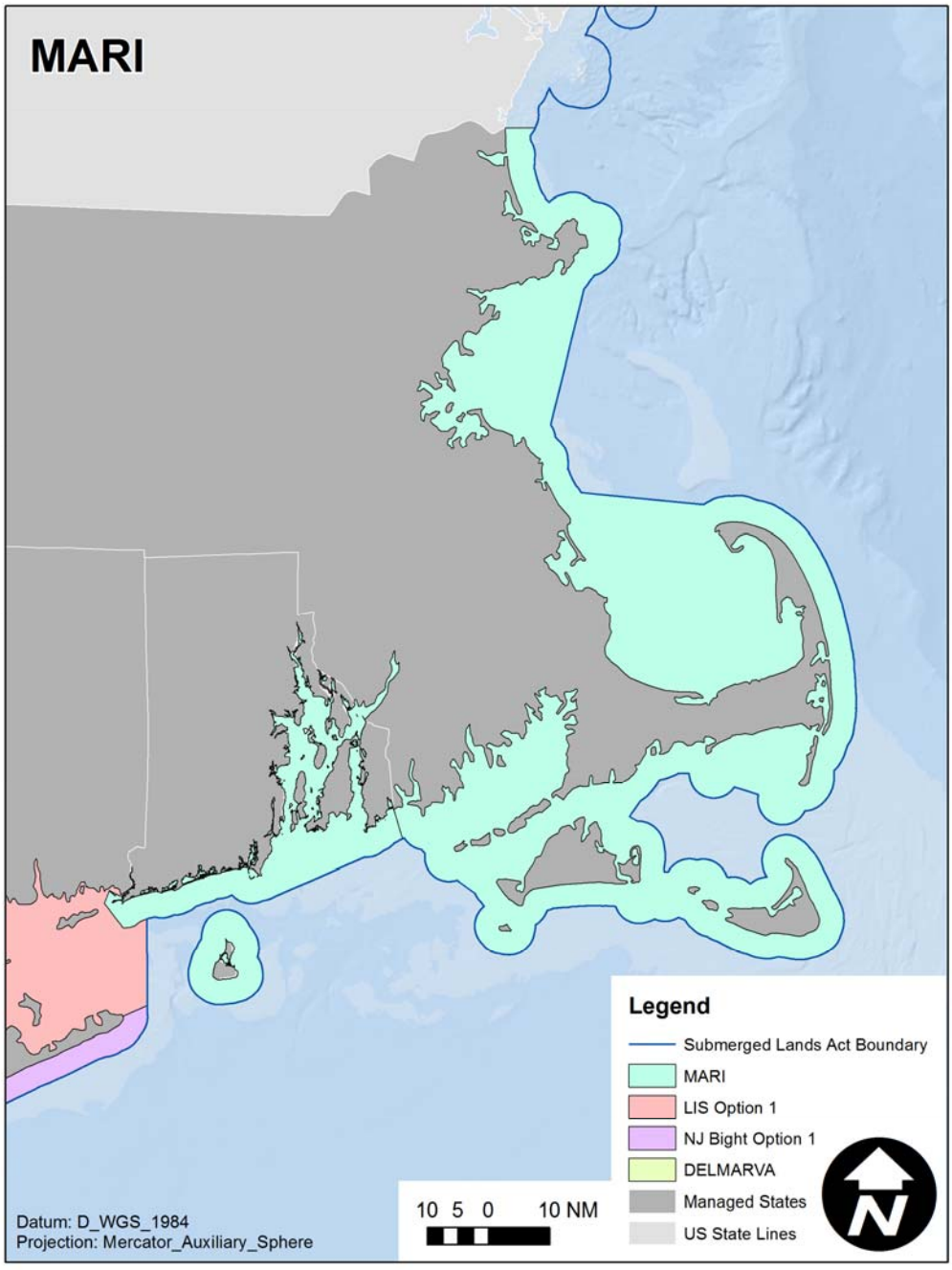


Figure 27. Proposed Massachusetts and Rhode Island Management Area

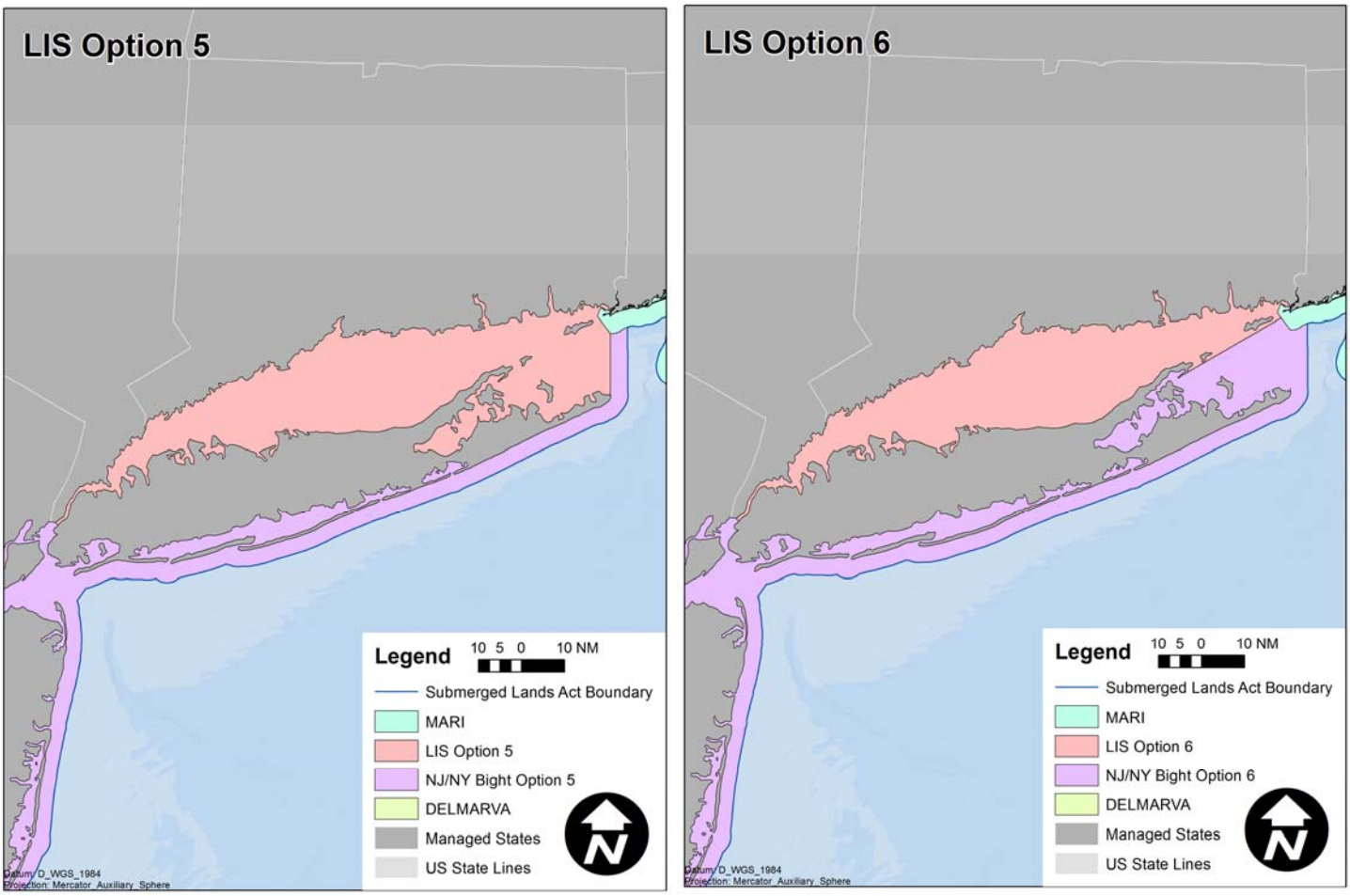


Figure 28. Proposed Long Island Sound Management Area

When Amendment 1 is finalized, the appropriate boundaries/maps will be included in the document.

Sub-Option B1 (map on the left): Long Island Sound is delineated by a line that runs from Montauk Point, New York to Watch Hill, Rhode Island. All waters west of the line will follow the Long Island Sound management measures. The MRIP data that was used to evaluate the LIS stock status is aligned with this option.

Sub-Option B2 (map on the right). Long Island Sound is delineated by a line that runs from Orient Point, New York to Watch Hill, Rhode Island. All waters west of the line will follow the Long Island Sound management measures.

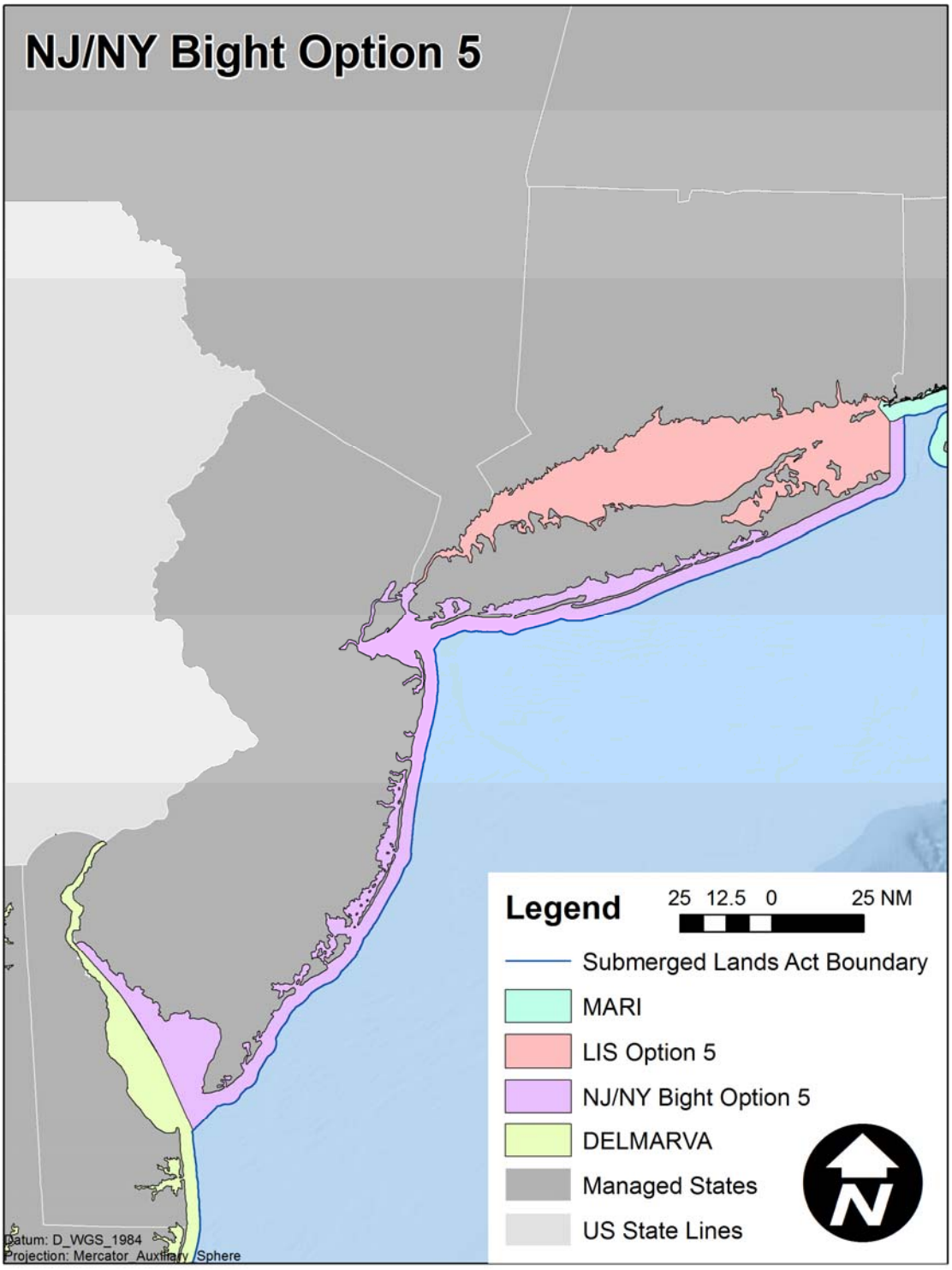


Figure 29. Proposed New Jersey-New York Bight Management Area

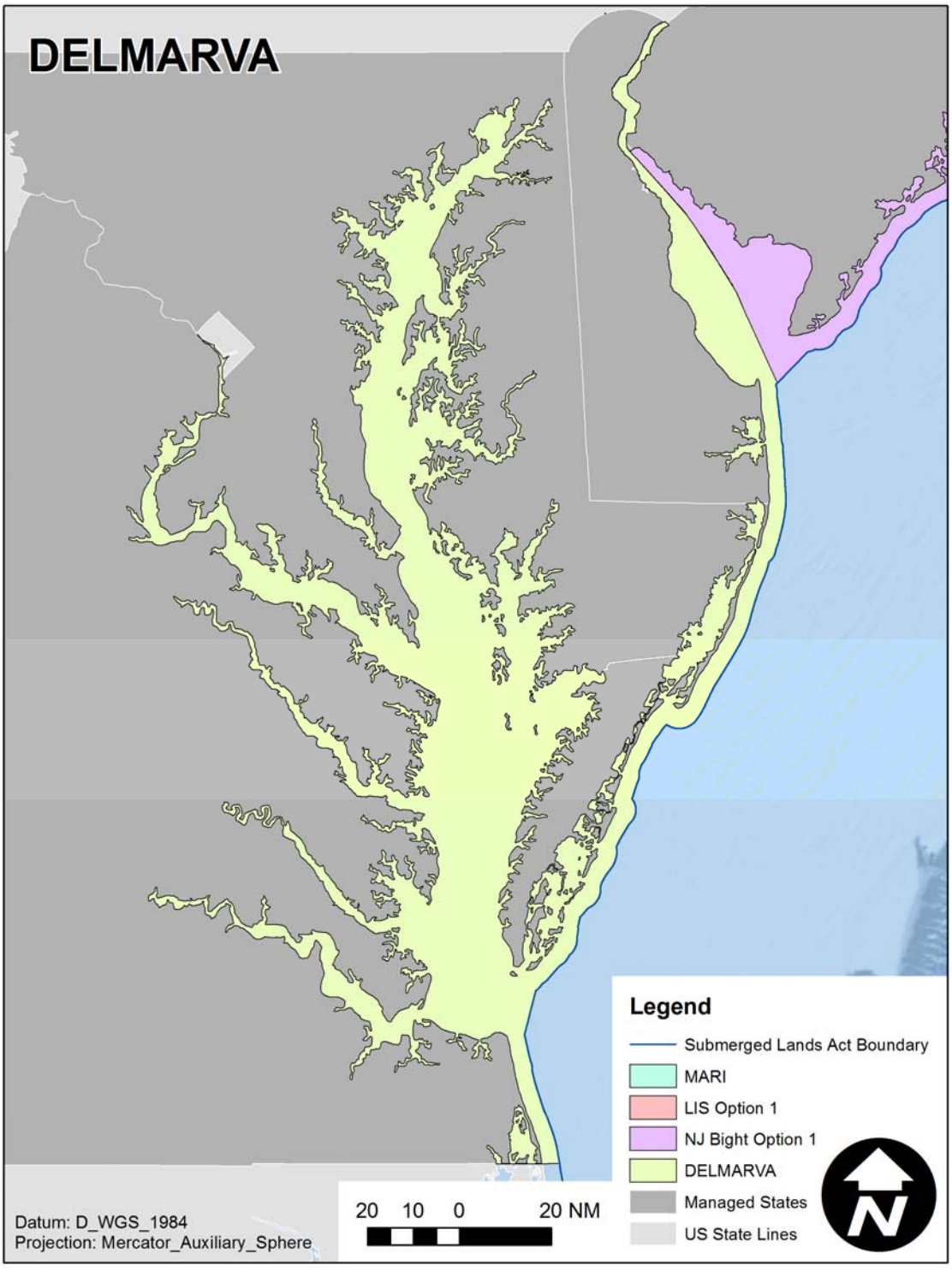


Figure 30. Proposed Delaware, Maryland, Virginia Management Area

4.2 REGIONAL MANAGEMENT MEASURES

Management options by region were developed by the TC in response to the 2016 stock assessment update. Two regions would be required to take harvest reductions to due to the regional stock status: LIS and NJ-NYB. Two regions would not have to take harvest reductions, but are proposing regional measures: MARI and DelMarVa.

4.2.1 Procedure to Develop Regional Management Measures

Compatible regulations between adjacent states are desirable to prevent the shift of fishing effort to areas with more liberal regulations, or to an area with an open season. If a region is considering consistent measures across for all states within a region then a regional working group will be developed to discuss appropriate alternatives. A regional working group consists of representatives from each member state within the region. It is recommended that the regional working group decisions are made by consensus.

If a state within a region wants to implement different management measures than those within the region, the general procedure within *Section 4.11, Conservation Equivalency* will be followed. It is recommended that the state convene the regional working group to discuss and review the proposed management measures.

All modifications to management measures (e.g., bag limit, minimum size, seasonal closures, quota, etc.) will be reviewed by the TC and approved by the Management Board. Once approved by the Board, the management measures can be implemented.

4.2.2 Massachusetts-Rhode Island (MARI)

Historically, tautog management measures in MARI have been state-specific (Tables 14 and 15). In response to the 2016 stock assessment update, managers are proposing regional management options for the public to consider (Table 16). If the regional management measures are modified at a future date, all states will agree to the new regulations prior to regional implementation (See Section 4.2.1).

Table 14. 2017 MARI Recreational Regulations

STATE	SIZE LIMIT (inches)	POSSESSION LIMITS (number of fish/person/day)	OPEN SEASONS
Massachusetts	16”	3	Jan 1 – Dec 31
Rhode Island	16”	3 (up to 10/private vessel)	Apr 15 – May 31
		3 (up to 10/private vessel)	Aug 1 – Oct 14
		6 (up to 10/private vessel)	Oct 15- Dec 15

Table 15. 2017 MARI Commercial Regulations

STATE	SIZE LIMIT (inches)	POSSESSION LIMITS (number of fish/vessel/day)	OPEN SEASONS	2017 QUOTA (lbs.)
Massachusetts	16"	40	Sept 1 - Oct 31	64,643
Rhode Island	16"	10	Apr 15 - May 31	17,116
			Aug 1 - Sept 15	13,390
			Oct 15 - Dec 31	17,116

4.2.2.1 Massachusetts-Rhode Island Proposed Recreational Management Measures

The following tools were used by MARI to calculate harvest reductions to achieve similar regulations between the two states. The methods described below all use MRIP recreational data for the years of 2013 – 2015, only waves 2 – 6 are available for analysis in these states during these years.

Four methods of estimating future recreational tautog harvest were employed. These included; 1) seasonal reductions calculated from daily harvest rates based on MA and RI harvest from 2013 - 2015 waves 2 – 6 according to MRIP data; 2) bag limit reduction calculations based on MA and RI harvest from 2013 - 2015 waves 2 – 6 according to MRIP data; 3) reductions achieved from increasing the minimum size based on MRIP size distribution data from 2013 - 2015 waves 2 – 6, and 4) a methodology for combining size, bag, and season harvest reduction calculations based on MA and RI harvest from 2013 - 2015 waves 2 – 6 according to MRIP data.

Table 16. Proposed MARI Recreational Regional Management Measures

Option	Minimum Size	Possession Limit	Open Season	% Harvest Reduction
A. Status Quo	16"	See Table 14		NA
B. All Measures Consistent	16"	3	March 1 - May 31; Aug 1 - Oct 14	9%
		4	Oct 15 - Dec 31	
C. All measures consistent	16"	3	March 1 - May 31; Aug 1 – Dec 31	19%

4.2.2.2 Massachusetts-Rhode Island Proposed Commercial Management Measures

There are no proposals to adjust the commercial regulations for MA-RI. The regulations in Table 15 would continue to be enforced unless a state or region adjusts the measures following the procedures set forth in *Section 4.2.1 or 4.3.*

4.2.3 Long Island Sound

Based on the 2016 stock assessment update, the LIS region is overfished and overfishing is occurring. The region will need to reduce commercial and recreational harvest by a minimum of 47.2% to achieve the F Target by 2021. The current management measures (Table 17 & 18) will be adjusted to meet the required reductions.

Table 17. 2017 LIS Recreational Regulations

STATE	SIZE LIMIT (inches)	POSSESSION LIMITS (number of fish/person/day)	OPEN SEASONS
Connecticut	16”	2 2 ~~4~~	Apr 1-Apr 30 July 1 – Aug 31 Oct 10 – Dec 6
New York	16”	~~4~~	Oct 5 – Dec 14

Table 18. 2017 LIS Commercial Regulations

STATE	SIZE LIMIT (inches)	POSSESSION LIMITS (number of fish/vessel/day)	OPEN SEASONS	2017 QUOTA (lbs.)
Connecticut	16”	10	Apr 1- Apr 30 Jul 1 - Aug 31 Oct 8 - Dec 24	-
New York	15”	25 (except, 10 per vessel when fishing lobster pot gear and more than six lobsters are in possession)	Jan 1 – Feb 28 Apr 8 – Dec 31	-

4.2.3.1 Long Island Sound Proposed Recreational Management Measures

Recreational options were developed by adjusting season, size and possession limit regulations using MRIP data from 2013 to 2015. Length analysis included data from MRIP, the CT Volunteer Angler Survey (> 16”) and the NY Headboat Survey (> 16”). Alterations in season length were evaluated by converting percent of annual harvest by wave to percent of annual harvest by day in each wave. Due to limited data (driven by minimal harvest) from the CT spring fishery (Waves 2 and 4), analysis focused on projected harvest reductions in response to changes in bag limit and minimum size at current season length for Wave 4.

The following LIS options were developed using a 50% probability of achieving F target, which is associated with a minimum harvest reduction of 47.2%.

Table 19. LIS recreational harvest reduction (of 47.2% or more) options to the status quo state-by-state measures

	State	Minimum Size	Possession Limit	Open Season	% Harvest Reduction
A1. State-specific Reduction	CT	17"	1	Apr. 1-30, Aug. 1-31	48.1%
			2	Oct 10-Nov 30	
	NY	16"	1	Oct. 5-Dec. 14	49.5%

Table 20. LIS recreational regional harvest reduction (of 47.2% or more) options

Regional Options	State	Minimum Size	Possession Limit	Open Season	% Harvest Reduction
B1. Consistent Minimum Size & Possession Limit	CT	16"	1	Apr. 1-30, Oct. 6-Dec. 6	47%
	NY			Oct. 1-Dec. 14	
B2. Consistent Minimum Size & Possession Limit	CT	17"	2	Apr 1-30, Aug 1-31, Oct. 10-Nov. 30	48.9%
	NY			Oct. 10-Nov. 30	
B3. All measures consistent	Regional	16"	1	Oct. 1-Nov. 9	47.1%

4.2.3.2 Long Island Sound Proposed Commercial Management Measures

Commercial options were developed based on seasonal closures. Connecticut's current commercial fishery has three open seasons and New York's commercial fishery has two open seasons. Total reported harvest from trip level reporting in 2013-2015 was calculated for each open season and converted to percent of total annual harvest. This was divided by the number of days in the season to provide an average daily percent of total annual harvest. It was then possible to look at seasonal closures that would reduce cumulative harvest by the required amount.

The following LIS option was developed using a 50% probability of achieving F target, which is associated with a minimum harvest reduction of 47.2%.

Table 21. LIS commercial harvest reduction (of 47.2% or more) options to the status quo state-by-state measures

Option	State	Minimum Size	Possession Limit	Open Season	% Harvest Reduction
A1. State-specific Reduction	CT	16"	10	Apr. 1-30, Aug. 1-31, Oct. 21-Dec. 4	47.3%
	NY	15"	25 (except, 10 per vessel when fishing lobster pot gear and more than six lobsters are in possession)	Jan. 1-Feb. 28, Apr. 1-30, Aug. 1-Dec. 31	51.3%

Table 22. LIS commercial regional harvest reduction (of 47.2% or more) option

Regional Option	State	Minimum Size	Possession Limit	Open Season	Quota (lbs)	% Harvest Reduction
B1. Quotas	CT	16"	-	Jan.1 – Apr 30, Aug. 1-Dec.31	2,785	47.2%
	NY				39,021	

4.2.3.3 Long Island Sound Proposed Slot Limit for the Commercial and Recreational Fisheries

Harvest slot scenarios were calculated for Long Island Sound for recreational and commercial fisheries, combined. These calculations were based on the same catch and harvest length distributions used in the Long Island Sound stock assessment update for the years 2013-2015. Catch and harvest lengths were scaled by the mean number of fish caught and harvested in LIS in the given years. The proportion of catch in a size class (P_L) was calculated (catch in length/total catch). As the proportion harvested in legal size classes was nearly 1, the proportion harvested was set to 1 for all subsequent calculations. Given that, the yield (Y_L) in a size class was calculated:

$$Y_L = C \times P_L$$

The sum of Y_L for all the lengths of interest in a slot results in the yield (Y, number of fish harvested).

$$Y = \sum_{i=slot\ min}^{n=slot\ max} Y_i + Y_{i+1} + \cdots + Y_n$$

The number of dead discards was estimated by the product of the discard mortality (2.5%) and the sum of all Y_L outside of the harvest slot and was included in the percent reduction. Y_L was also calculated based on the biomass by converting length to mean weight.

$$Y_L = C \times P_L \times W_L$$

Yield in biomass (Yb) was calculated as above.

All harvest reductions for slot limits include season closures from May to July.

Harvest slots provide the opportunity to protect the large female spawners which produce exponentially more eggs (which are potentially of higher quality) than smaller females (LaPlante and Schultz, 2007). As tautog have a relatively low discard mortality rate (2.5%) harvest slots provide an opportunity for implementing harvest reductions without increasing the minimum size.

There are no viable harvest reduction options for slot limit for recreation and commercial fishery, with a size range of 14"- X" using status quo bag and seasonal closures. This is largely because of a high proportion of fish under 16" in the current size structure of the population. Reducing bag size and additional seasonal closures would be required to achieve these harvest reductions with such a slot limit.

A harvest slot between 16" and 18" is possible with no reductions in bag size (Table 23). This option includes a season closure for May, June and July. It would have no significant impact on these harvest reductions if bonus fish (recreational sector) within one inch of the state record (34" for CT and 32" for NY) were allowed. Reductions are shown in number of individuals and biomass (Table 23).

Table 23. LIS regional management harvest reduction scenarios with harvest slot limits for commercial and recreational fisheries.

Slot Limit Option	State	Minimum Size	Possession Limit	Open Season	% Harvest Reduction
C. 16"-18" harvest slot	CT	16-18"	Status quo (See Tables 17 & 18)	Apr. 1-30, Aug. 1-31, Oct. 10-Dec 6	51.3%
	NY			Oct. 5-Dec. 14	

4.2.4 New Jersey-New York Bight

Based on the 2016 stock assessment update, the NJ-NYB region is overfished and overfishing is occurring. The region will need to reduce commercial and recreational harvest by a minimum of 2% to achieve the F Target by 2021. The current management measures (Table 24 & 25) will be adjusted to meet the required reductions.

Table 24. 2017 NJ-NYB recreational regulations

STATE	SIZE LIMIT (inches)	POSSESSION LIMITS (number of fish/person/day)	OPEN SEASONS
New York	16”	~~4~~	Oct 5 – Dec 14
New Jersey	15”	~~4~~	Jan 1 – Feb 28
		~~4~~	Apr 1 – Apr 30
		1	Jul 17 – Nov 15
		6	Nov 16 – Dec 31

Table 25. 2017 NJ-NYB commercial regulations

STATE	SIZE LIMIT (inches)	POSSESSION LIMITS (number of fish/vessel/day)	OPEN SEASONS	2017 QUOTA (lbs.)
New York	15”	25 (except, 10 per vessel when fishing lobster pot gear and more than six lobsters are in possession)	Jan 1 – Feb 28 Apr 8 – Dec 31	-
New Jersey	15”	> 100 lbs requires directed fishery permit	Jan 1 - 15 June 11 - 30 Nov 9 - Dec 31	103,000

4.2.4.1 New Jersey-New York Bight Proposed Recreational Management Measures

Data for this analysis were obtained from MRIP raw length and catch frequency data by wave from 2013 through 2015 using only records showing legal size, bag and season harvests (data excludes Long Island Sound harvests). Percent savings estimates by wave for size and bag limit options were calculated through an R code program. Wave (season) savings were estimated by calculating the percent harvest by wave of the total annual harvest for the sum of the years 2013 through 2015.

NJ-NYB region chose a 15-18 inch slot limit proposal as a way for fishermen to keep a good percentage of current harvests (between 73 – 80%) while allowing the largest fish (those equal

to or greater than 18.5 inches) to remain in the population since research has shown larger tautog are the greatest contributors to the reproductive potential of the stock. The percent reductions for this slot limit were calculated by taking the proportion of total harvest of the fish legally landed in the recreational fishery in New Jersey and New York's south shore which exceeded 18 inches. The resulting reduction percentages were 19.6% and 26.9% for New Jersey and New York Bight respectively. These percentage savings were applied to both the recreational and commercial sectors due to the lack of length frequency data for commercial catches. The data were obtained from the MRIP length frequency and Type 9 information, New Jersey Volunteer Angler Survey, and the south shore component of New York's DEC Headboat Survey.

The following NJ-NYB options were developed using a 50% probability of achieving F target, which is associated with a minimum harvest reduction of 2%.

Table 26. NJ-NYB recreational harvest reduction (of 2% or more) options to the status quo state-by-state measures

Option	State	Minimum Size	Possession Limit	Open Season	% Harvest Reduction
A1. State-specific Reduction	NYB	16"	4	Oct 6 - Dec 13	2%
	NJ	15"	4	Jan 1 – Feb 28	
			4	Apr 1 - 18	
			1	Aug 21 – Nov 15	
			6	Nov 16 – Dec 31	

Table 27. NJ-NYB recreational regional harvest reduction (of 2% or more) options

Regional Options	State	Minimum Size	Possession Limit	Open Season	% Harvest Reduction
B1. Consistent Minimum Size & Possession Limit	NYB	15"	4	Oct 10 - Dec 12	2%
	NJ			Sep 17 - Dec 31	
B2. Consistent Minimum Size	NYB	16"	4	Oct 6 - Dec 14	4%
	NJ		4	Jan 1 – May 31	
			6	Aug 31-Dec 31	
C1. Slot Limit with Consistent Possession Limits	NYB	15-18"	4	Oct 2 - Dec 26	2%
	NJ			Jan 1 - Mar 31; Aug 20 - Dec 31	

4.2.4.2 New Jersey-New York Bight Proposed Commercial Management Measures

Length frequencies from the recreational sector were used for both the commercial and recreational sectors due to the lack of commercial length frequencies and to reflect the predominance of the recreational harvest (~90%) in the tautog fisheries for both New Jersey (NJ) and the south shore of New York (NYB). For NJ, the data were pulled from the MRIP NJ harvest expanded length frequencies, the state's Volunteer Angler Survey's kept length frequencies, and the Type 9 MRIP records. For NYB, the raw MRIP length frequency data were used due to the necessity of pulling out the records obtained from Long Island Sound. These data were supplemented by the New York State DEC Headboat Survey length frequencies and MRIP Type 9 data from the non-Long Island Sound records.

The following NJ-NYB options were developed using a 50% probability of achieving F target, which is associated with a minimum harvest reduction of 2%.

Table 28. NJ-NYB commercial harvest reduction (of 2% or more) options to the status quo state-by-state measures

Option	State	Minimum Size	Possession Limit	Open Season	% Harvest Reduction
A1. State-specific Reduction	NYB	15"	25	Jan 1 - Feb 28; Apr 14 - Dec 31	2%
	NJ		-	Jan 1 - 15; Jun 11 - 30; Nov 12 - Dec 31	

Table 29. NJ-NYB commercial regional harvest reduction (of 2% or more) options

Regional Options	State	Minimum Size	Possession Limit	Open Season	Quota (lbs)	% Harvest Reduction
B1. Consistent Minimum Size	NYB	15"	28	Jan 1 - May 31; Aug 1 - Dec 31	-	2%
	NJ		-	Jan 1 - May 1; Sep 19 - Dec 31	-	
B2. Consistent Minimum Size	NYB	16"	31	Jan 1 - May 31; Aug 1 - Dec 31	-	2%
	NJ		-	Jan 1 - May 11; Aug 1 - Dec 31	-	
B3. Quotas	NYB	15"	-	-	65,486	2%
	NJ				23,259	
C4. 15"- 18" harvest slot	NYB	15-18"	34	Jan 1 - May 31; Aug 1 - Dec 31	-	2%
	NJ		-	Jan 1 - Apr 21; Aug 11 - Dec 31	-	

4.2.5 Delaware – Maryland - Virginia

Historically, tautog management measures in DelMarVa have been state-specific (Tables 30 and 31). In response to the 2016 stock assessment update, managers are proposing regional management options for the public to consider (Table 32). If the regional management measures are modified at a future date, all states will agree to the new regulations prior to regional implementation (See Section 4.2.1).

Table 30. 2017 DelMarVa recreational regulations

STATE	SIZE LIMIT (inches)	POSSESSION LIMITS (number of fish/person/day)	OPEN SEASONS
Delaware	15”	5	Jan 1 – Mar 31
		3	Apr 1 – May 11
		5	July 17 – Aug 31
		5	Sept 29 – Dec 31
Maryland	16”	~~4~~	Jan 1- May 15
		2	May 16 – Oct 31
		~~4~~	Nov 1 – 26
Virginia	16"	3	Jan 1 – April 30
			Sept 20 – Dec 31

Table 31. 2017 DelMarVa commercial regulations

STATE	SIZE LIMIT (inches)	POSSESSION LIMITS (number of fish/vessel/day)	OPEN SEASONS	2017 QUOTA (lbs.)
Delaware	15”	5	Jan 1 - Mar 31	-
		3	Apr 1 - May 11	
		5	July 17 - Aug 31	
		5	Sept 29 - Dec 31	
Maryland	16”	4	Jan 1- May 15	-
		2	May 16 - Oct 31	
		4	Nov 1 - 26	
Virginia	15”	-	Jan 1 – Jan 21	-
			Mar 1 – Apr 30	
			Nov 1 – Dec 31	

4.2.5.1 Delaware-Maryland-Virginia Proposed Recreational Management Measures

Table 32. Proposed DelMarVa Recreational Regional Management Measures

Option	State	Minimum Size	Possession Limit	Open Season	% Harvest Reduction/ Liberalization
A. Status Quo		See Table 30			NA
B. Consistent Possession Limit & Seasons	DE	15”	4	Jan 1 – Apr 30; July 1 – Dec 31	8.5% Liberalization
	MD	16”			
	VA				
C. Consistent Minimum Size	DE	16”	5	Jan – Mar 31	11.9% Reduction
			3	Apr 1 – 30	
			5	July 1 – Dec 31	
	MD		4	Jan 1 – Apr 30 Aug 1 – Dec 31	
	VA		3	Jan 1 – Apr 30 Sept 20 – Dec 31	
D. All measures consistent	Regional	16”	4	Jan 1 – April 30; July 1 – Dec 31	11.6% Reduction

4.2.5.2 Delaware-Maryland-Virginia Proposed Commercial Management Measures

There are no proposals to adjust the commercial regulations for DelMarVa. However, Delaware and Maryland have traditionally adopted the recreational measures as the commercial measures; and could continue to do this if the recreational measures are changed (Option B). If the region would like to make this decision at a later date then it can do so following the procedures set forth in *Section 4.2.1 or 4.3.*

Option A. Status Quo measures, as shown in Table 31

Option B. The modified recreational measures for Delaware and Maryland will be implemented as commercial measures (Section 4.2.5.1); Virginia commercial measures will remain status quo.

4.3. COMMERCIAL QUOTA
Option A. Status Quo. No specific commercial quota procedures.

Option B. Commercial Quota Procedures (Option B includes Sections 4.3.1 – 4.3.5)
A state or region may implement an annual commercial quota if the following procedures are met and Board approval is granted.

For the purposes of this section, a regional working group consists of representatives from each member state within the region. Regional working group decisions related to commercial quotas should be made by consensus.

Quota proposals will be reviewed by the TC according to *Sections 4.3.1* or *4.3.2*.; and develop a recommendation for the Board. The Board will meet to review and consider approval of the quota. Once approved by the Board, the regional quota can be implemented.

4.3.1 Commercial Quota within a Region
A regional working group will be developed to discuss the parameters of a regional quota across one or more states and develop rationale to justify the proposed quota. The proposal must include an agreed upon allocation method (by all member states within the region) and data to justify the quota must include the most recent 10 years of data. For example, a 2017 quota can include any combination of data from 2006-2016.

4.3.2 State-Specific Quota within a Region
If a state within a region wants to implement a quota and some or none of the other states have a quota then the proposed quota will need to be brought to the regional working group. Data to justify the quota must include the most recent 10 years of data. For example, a 2017 quota can include any combination of data from 2006-2016.

4.3.3 Quota Rollover
Due to the current stock condition, the PDT does not recommend the use of quota rollovers. If stock condition changes this management tool can be re-evaluated. Unused quota may not be rolled over from one fishing year to the next.

4.3.4 Quota Transfer
States can transfer quota to another state within the same region. The quota transfer must be finalized within the current fishing year. Quota cannot be transferred outside of a region.

States have the responsibility to close the tautog commercial fishery in their state once the quota has been reached. The Executive Director or designated ASMFC staff will review and approve all transfer requests before the quota transfer is finalized.

Once quota has been transferred to a state, the state receiving quota is responsible for any overages of transferred quota. That is, the amount over the final quota (that state's quota plus

any quota transferred to that state) for a state will be deducted from the corresponding state's quota the following fishing season.

4.3.5 Quota Overage

If a region or state exceeds the quota in a fishing season, the overage will be deducted from the corresponding region or state in the subsequent fishing year.

4.4 COMMERCIAL HARVEST TAGGING PROGRAM

Option A. Status Quo.

No commercial harvest tagging program.

Option B. Implement a Commercial Harvest Tagging Program

(Includes a sub-option under Section 4.4.3)

If a commercial harvest tagging program is implemented then a state would not need to adopt the proposed commercial effort controls (e.g., changes to the size limit, season length, etc.) to achieve the necessary reductions, but would simply use a cap on the number of tags distributed. The cap could be derived from the proposed regional quota.

Law enforcement officials have evidence that indicates there is a significant illegal harvest of tautog, primarily in the live market. Reports of illegally harvested fish have been documented in cases against fishermen, fish houses and at retail markets and restaurants. In Massachusetts there have been a number of large cases made against licensed commercial fishermen, whereas in Delaware, New Jersey and New York illegal harvest seems mostly concentrated in the recreational fishery. Regardless of the source, most undersized, out-of-season or illegal quantities of live tautog are associated with the demand for tautog at ethnic food markets or restaurants. These markets are often found in large cities such as New York City and Philadelphia. To a lesser degree, illegal activity does occur among individuals and small groups harvesting fish for personal consumption or subsistence. This latter group may not even be aware they are violating specific regulations.

A commercial harvest tagging program was recommended to increase accountability in the fishery and curb illegal harvest. The tagging program would accommodate both the live and dead commercial markets. To evaluate the merits of such a program a Law Enforcement Subcommittee (Subcommittee), comprised of Tautog Board members and law enforcement representatives, was developed in 2015. As agreed upon by the Subcommittee, the tag should be easy to attach, secure and have minimal to no impact on the appearance or condition of live fish for the amount of time that live, tagged fish are maintained until consumption. The Subcommittee evaluated multiple tag types and fishermen were interviewed to describe the handling process from catch to market. A tautog tag trial was conducted to investigate the efficacy of a commercial tag that serves as a tool for law enforcement, while minimizing impact to the resource. The 30-day trial concluded with no mortality or degradation to fish health (Dumais et al 2016).

4.4.1 Objectives

The intent of the Commercial Harvest Tagging Program is to provide accountability in the commercial fishery and minimize illegal, unreported and unregulated (IUU) fishing, while utilizing methods that are easy for fishermen to use and do not detract from fish quality or marketability, and serve as a tool for law enforcement to evaluate compliance. To achieve these goals, the Subcommittee developed the following objectives:

Objective 1: Implement a verifiable tagging system that can aid enforcement and help identify IUU fish from reaching markets.

Objective 2: Use tags of a consistent type and style among all states that include standardized identifiers of year, state, and tag number.

Objective 3: Employ tags that are single-use only. Tags must be difficult to replicate. All unused tags will be returned or otherwise accounted for annually.

Objective 4: Implement a tagging program that will accommodate both the live and dead commercial fish markets. The tags used must be easy to attach, secure and have minimal to no impact on the appearance or condition of live fish for the amount of time that live, tagged fish are maintained until consumption.

4.4.2 Commercial Tagging

All states within a regional management unit are required to participate in the commercial harvest tagging program. *De minimis* status does not preclude a state from the requirements of the commercial harvest tagging program.

All states will use the same single-use tag. The tag will be inscribed with the year of issue, state of issue and a unique number. The **unique number will be linked back to the permit holder**. States will distribute tags to participants. It is unlawful to sell or purchase commercially caught tautog (alive or dead) without a commercial tag. The cost of the tag will be financed by states or fishermen at the discretion of each state or jurisdiction.

4.4.3 Tag Application

Option A. Harvester Application at Harvest or Prior to Offloading

All commercially caught tautog will be tagged by the commercially-permitted harvester at the time of harvest or prior to offloading. Tautog must be landed in the state that is identified on the tag.

Option B. Application by Dealer

All commercially caught tautog will be tagged by a licensed dealer. The location (state) of the sale must correspond to the state identified on the tag. The tag will be applied to the fish immediately after the dealer buys the fish from the harvester.

4.4.4 Tag Allowance (Biological Metric)

States are required to allocate commercial tags to the recipients described in Section 4.4.3 based on a biological metric, which will be described in the Annual Commercial Tag Report (Section 4.4.7). This metric is an estimate to determine the number of fish tags that will be required per year; the goal is to avoid surplus tags. For example, the majority of states in the striped bass commercial tagging program use the average commercial weight per fish from the previous year, or some variation thereof as the biological metric.

4.4.5 Tag Accounting

All states will require the recipients described in Section 4.4.3 to return unused tags from the previous fishing year no later than **February 15**.The return method will be further described by each state. The number of unused tags will be included in the Annual Commercial Tag Report (Section 4.4.7), along with the disposition of other returned tags (e.g., used, broken, lost, etc). Tag recipients who do not comply with this section may be subject to penalties set forth in Section 4.4.6.

4.4.6 Penalties

It is recommended that states strengthen their penalties for tautog violations and include counterfeit tag operations, in order to deter illegal harvest of tautog. License revocation or suspension is supported as a primary penalty for state or federal violations. Civil and/or criminal penalties can be also effective deterrents. It is recommended that cases of undocumented "lost" tags should result in a 1-year suspension from the commercial tautog fishery (for the subsequent fishing year).

4.4.7 Annual Commercial Tag Report

The existing compliance report will be modified to include a Commercial Tag section that must be completed by each state. The report must include the following information. The Board may modify the sections of the report via Board action.

- Describe the biological metric
- Number of tag violations.
- Complete the following table:

State	MA	RI	CT	NY (LIS)	NY (south shore)	NJ	DE	MD	VA
Quota (if applicable)									
Maximum Commercial Harvest per Region									
Avg. Commercial Weight									
Number of Participants									
Number of Tags Issued									
Number of Tags Returned									

4.5 Gear Restrictions

Tautog pots and traps are required to have hinges and fasteners on one panel or door made of one of the following degradable materials:

1) Untreated hemp or jute string of 3/16 inch (4.8mm) in diameter or smaller;
2) Magnesium alloy fasteners, timed float releases (pop-up devices) or similar magnesium alloy fasteners;
3) Ungalvanized or uncoated iron wire of 0.094-inch (2.39mm) diameter or smaller.

4.6 SPAWNING TIME PERIODS

After consideration of mandated spawning closures, the Board determined to leave the authority with the individual states. Each region reviewed the Estuarine Living Marine Resources Database https://products.coastalscience.noaa.gov/elmr/ to determine peak spawning as well as scientific articles that are summarized in *Section 1.2.1 Species Life History*. The management measures presented in this document include measures intended to reduce disruption on tautog pairing and to protect spawning females. A state can modify future management measures to allow harvest during spawning time periods via conservation equivalency. The TC recommends implementing spawning closures during the following time periods:

- *Massachusetts-Rhode Island:* June through July
- *Long Island Sound:* May through July (See Appendix 1 for more biological information)
- *New Jersey-New York Bight:* June through July
- *Delaware-Maryland-Virginia:* May through June

4.7 POSSESSION LIMIT REGULATORY LANAGUAGE

Concern has been raised that the absence of tautog regulations in federal waters allows for loopholes that potentially contribute to overfishing. Possession restrictions have been used successfully to control federal waters fisheries for other species. While landing restrictions are enforceable, prohibiting possession allows for a larger area where marine enforcement can intercept vessels carrying tautog in amounts or sizes that violate state regulations. This Amendment requires that all state tautog regulations to prohibit *possession*. Therefore, harvesters should be aware of the strict possession limits that will apply once the vessel enters state waters.

4.8 FISHERY REGULATION ENFORCEMENT

The tautog fishery has many unique harvest, transportation, and marketing characteristics, which increase demand for small live fish. This Amendment emphasizes the need for state and federal enforcement agencies to place a high priority on the enforcement of tautog regulations. In addition, the public may also play an important role by reporting information on illegal harvest and sale of tautog to their state's marine fishery enforcement agency.

4.9 DATA COLLECTION

The recreational fishery occurs throughout the year. The majority of the landings are captured through the Marine Recreational Information Program (MRIP) administered by the National Marine Fisheries Service. However, the MRIP does not sample landings during January and February (wave 1). This Amendment recommends states initiate a sampling program to estimate the recreational harvest of tautog during January and February.

4.10 HABITAT CONSERVATION AND RESTORATION RECOMMENDATIONS

4.10.1 Preservation of Existing Habitat

Management of existing habitat on a sustainable basis requires a thorough knowledge of essential habitat types, their distribution, and their use by all life history stages of tautog. Currently, additional research is needed to determine the extent and condition of essential tautog habitats on a coastwide basis. Once the locations and abundance of essential tautog habitats are determined, refuges and special fishery management zones (SMZ) that limit fishing access and gear types are one potential method of habitat management.

4.10.2 Habitat Restoration, Improvement, and Enhancement

Restoration should be considered where well-known, historically "productive" tautog habitat has been degraded or lost.

Restoration could be directed specifically toward tautog habitat or it could occur as a component of other efforts. South of Cape Cod, restoration of lobster habitat should also consider the needs of tautog because habitat usage by the two species overlaps. Response plans for accidental toxic spills in coastal waters should focus on tautog as well as shellfish resources, because tautog are localized and depend on specific habitats and associated food

sources that are susceptible to chemical contamination. Point source contamination and hypoxia near nursery grounds can be improved by minimizing sewage discharges and increasing wastewater treatment levels. Non-point source toxic contamination of groundwater and nearshore coastal habitats can be reduced by redirecting storm water runoff into catch basins.

Habitat enhancement requires the creation or expansion of essential habitat where little or none presently exists. Creation of artificial reef habitats (see *Section 1.5.4.1*) and breakwaters could mitigate habitat losses. Both intentional reef construction and accidental creation through shipwrecks may be expanding tautog habitat in open, sandy coastal areas where tautog would not normally be found.

4.10.3 Avoidance of Incompatible Activities

Each state should establish windows of compatibility for activities known, to adversely affect tautog habitat, including projects involving water withdrawal, entrainment of eggs and larvae in cooling water systems and mortality from thermal effects, dredging, bulk-heading and channel construction. As a preventative measure, buffer zones could be established around important nursery areas.

4.10.4 Fishery Practices

Certain gear types may disrupt tautog habitat, however, insufficient information is available to quantify effects at this time. Derelict lobster traps are known to entrap tautog, resulting in unquantified mortality. Any fishing gear having an unacceptable impact on tautog habitat should be prohibited within essential habitats.

4.11 ALTERNATIVE STATE/REGION MANAGEMENT REGIMES/MANAGEMENT PROGRAM EQUIVALENCY

Once approved by the Tautog Management Board, states are required to obtain prior approval from the Board of any changes to their management program for which a compliance requirement is in effect. Other measures must be reported to the Board but may be implemented without prior Board approval. A state can request permission to implement an alternative to any mandatory compliance measure only if that state can show to the Board's satisfaction that its alternative proposal will have the same conservation value as the measure contained in this amendment or any addenda prepared under *Adaptive Management (Section 4.12*). States submitting alternative proposals must demonstrate that the proposed action will not contribute to overfishing of the resource. States may submit alternative region/state proposals under this section following the procedures outlined in the Commission's Conservation Equivalency Policy and Technical Guidance Document.

4.11.3 *De Minimis* Fishery Guidelines

4.11.3.1 Criteria for De Minimis Consideration

To be eligible for *de minimis* consideration, a state must prove that its commercial landings in the most recent year for which data are available did not exceed *the greater of* 10,000 pounds or 1% of the regional landings.

4.11.3.2 Plan Requirements if De Minimis is Granted

If *de minimis* status is granted, the *de minimis* state is required to implement the minimum size provisions, the pot and trap degradable fastener provisions, and regulations consistent with those in the recreational fishery (including possession limits and seasonal closures). The state must monitor its landings on at least an annual basis and provide a compliance report as outlined in *Section 5.1.2* of the Tautog FMP. If the FMP is altered through adaptive management as specified in *Section 4.12* of the Tautog FMP the Management Board will specify by motion which measures *de minimis* states must adopt.

4.11.3.3 Procedure to Apply for De Minimis Status

States must specifically request *de minimis* status each year. Requests for *de minimis* status will be reviewed by the Tautog Plan Review Team (PRT) as part of the annual FMP review process. Requests for *de minimis* must be submitted to the ASMFC Tautog FMP Coordinator as a part of the state's yearly compliance report. The request must contain the following information: commercial landings for the most recent year, commercial regulations for the current year, and the proposed management measures the state plans to implement for the year *de minimis* status is requested. The FMP Coordinator will then forward the information to the PRT and, if necessary, the Tautog Technical Committee and Stock Assessment Subcommittee.

In determining whether or not a state meets the *de minimis* criteria, the PRT will consider the information provided with the request, the most recent available coastwide landings data, any information provided by the Technical Committee and Stock Assessment Subcommittee, and projections of future landings. The PRT will make a recommendation to the Board to either accept or deny the *de minimis* request. The Board will then review the PRT recommendation and either grant or deny the *de minimis* classification.

The Board must make a specific motion to grant a state *de minimis* status. By deeming a given state *de minimis*, the Board is recognizing that: the state has a minimal tautog fishery; there is little risk to the health of the tautog stock if the state does not implement the full suite of management measures; and the overall burden of implementing the complete management and monitoring requirements of the FMP outweigh the conservation benefits of implementing those measures in the particular state.

If commercial landings in a *de minimis* state exceed the *de minimis* threshold, the state will lose its *de minimis* classification, will be ineligible for *de minimis* in the following year, and will be required to implement all requirements of the FMP. If the Board denies a state's *de minimis* request, the state will be required to implement all the requirements of the FMP. When a state

rescinds or loses its *de minimis* status the Board will set a compliance date by which the state must implement the required regulations.

4.12 ADAPTIVE MANAEGMENT

The Tautog Management Board may vary the requirements specified in this amendment as a part of adaptive management in order to conserve the tautog resource. The elements that can be modified by adaptive management are listed in *Section 4.12.2*. The process under which adaptive management can occur is provided below.

4.12.1 General Procedures

The Plan Review Team (PRT) will monitor the status of the fishery and the resource and report on that status to the Tautog Management Board annually, or when directed to do so by the Section. The Plan Review Team may consult with the Technical Committee, the Stock Assessment Committee or the Advisory Panel, if any. The report may contain recommendations concerning proposed adaptive management revisions to the management program. If the PRT makes a recommendation, the Tautog Management Board will review the report and may consult further with Technical Committee, the Stock Assessment Committee or the Advisory Panel.

If an addendum is initiated, then the Board will provide guidance on the specific issues that the Plan Development Team (PDT) should address. The PDT will be convened after members are nominated and approved by the Board.

A public hearing will be held in any state that requests one. The PDT will also request comment from federal agencies and the public at large. The PDT will summarize the comments and prepare a final version of the addendum for the Board. The Board will consider the public comments received and the recommendations of the Technical Committee, the Stock Assessment Committee or the Advisory Panel. The Section shall then decide whether to adopt, or revise and then adopt, the addendum. The addendum shall contain a schedule for the states to implement its provisions.

Upon adoption of an addendum implementing adaptive management by the Board, states shall prepare plans to carry out the addendum, and submit them to the Board for approval according to the schedule contained in the addendum.

4.12.2 Measures Subject to Change

The following measures are subject to change under adaptive management upon approval by the Tautog Management Board:

1. Rebuilding targets and schedules
2. Fishing season including seasonal closures
3. Trip limits/bag limits
4. Minimum size

5. Commercial harvest tagging program
6. Reporting requirements
7. Gear restrictions
8. Management areas/regions
9. Recommendations to the Secretary for complimentary actions in federal jurisdictions
10. Research or monitoring requirements
11. Or any other management action

4.13 EMERGENCY PROCEDURES

Emergency procedures may be used by the Tautog Management Board to require any emergency action that is not covered by or is an exception or change to any provision in Amendment 1. Procedures for implementation are addressed in the ASMFC Interstate Fisheries Management Program Charter, Section Six (c)(11) (ASMFC 2016).

4.14 MANAGEMENT INSTITUTIONS

The management institutions for tautog shall be subject to the provisions of the ISFMP Charter (ASMFC, 2016). The following is not intended to replace any or all of the provisions of the ISFMP Charter. All committee roles and responsibilities are included in detail in the ISFMP Charter and are only summarized here.

4.14.1 Atlantic States Marine Fisheries Commission and ISFMP Policy Board

The ASMFC (Commission) and the ISFMP Policy Board are generally responsible for the oversight and management of the Commission's fisheries management activities. The Commission must approve all fishery management plans, and amendments, including this Amendment 1, and must also make all final determinations concerning state compliance or noncompliance.

4.14.2 Tautog Management Board

The Tautog Management Board Section is generally responsible for carrying out all activities under this Amendment. It establishes and oversees the activities of the Plan Development or Plan Review Team, the Technical Committee and the Stock Assessment Subcommittee and requests the establishment of the Commission's Tautog Advisory Panel. Among other things, the Board makes changes to the management program under adaptive management and approves state programs implementing the amendment and alternative state programs under Sections 4.12.

4.14.3 Tautog Plan Development Team / Plan Review Team

The Tautog Plan Development Team (PDT) and the Tautog Plan Review Team (PRT) will be composed of a small group of scientists and/or managers whose responsibility is to provide all of the technical support necessary to carry out and document the decisions of the Tautog Management Board. The ASMFC FMP Coordinator chairs both. The PDT/PRT is directly responsible to the Section for providing information and documentation concerning the

implementation, review, monitoring and enforcement of Amendment 1. The PDT/PRT shall be comprised of personnel from state and federal agencies who have scientific and management ability and knowledge of tautog. The PDT will be responsible for preparing all documentation necessary for the development of Amendment 1, using the best scientific information available and the most current stock assessment information. The PDT will either disband or assume inactive status upon completion of Amendment 1. Alternatively, the Board may elect to retain PDT members as members of the PRT or appoint new members. The PRT will provide annual advice concerning the implementation, review, monitoring, and enforcement of Amendment 1 once the Commission has adopted it.

4.14.4 Tautog Technical Committee

The Tautog Technical Committee will consist of representatives from state or federal agencies, Regional Fishery Management Councils, Commission, university or other specialized personnel with scientific and technical expertise and knowledge of the tautog fishery. The Board will appoint the members of the Technical Committee and may authorize additional seats as it sees fit. Its role is to act as a liaison to the individual state and federal agencies, provide information to the management process, and review and develop options concerning the management program. The Technical Committee will provide scientific and technical advice to the Management Board, PDT, and PRT in the development and monitoring of a fishery management plan or amendment.

4.14.5 Tautog Stock Assessment Subcommittee

The Tautog Stock Assessment Subcommittee shall be appointed by the Technical Committee at the request of the Management Board, and will consist of scientists with expertise in the assessment of the tautog population. Its role is to assess the tautog population and provide scientific advice concerning the implications of proposed or potential management alternatives, or to respond to other scientific questions from the Board, Technical Committee, PDT or PRT. The Stock Assessment Subcommittee will report to the Technical Committee.

4.14.6 Tautog Advisory Panel

The Advisory Panel is established according to the Commission's Advisory Committee Charter. Members of the Advisory Panel are citizens who represent a cross-section of commercial and recreational fishing interests and others who are concerned about tautog conservation and management. The Advisory Panel provides the Board with advice directly concerning the Commission's tautog management program.

4.14.7 Federal Agencies

4.14.7.1 Management in the Exclusive Economic Zone (EEZ)

Management of tautog in the EEZ is within the jurisdiction of the Regional Fishery Management Councils under the Magnuson-Stevens Act (16 U.S.C. 1801 et seq.). In the absence of a Council Fishery Management Plan, management is the responsibility of the NMFS as mandated by the Atlantic Coastal Fishery Conservation and Management Act (16 U.S.C. 5105 et seq.)

4.14.7.2 Federal Agency Participation in the Management Process

The Commission has accorded the United States Fish and Wildlife Service (USFWS) and the NMFS voting status on the ISFMP Policy Board and the Tautog Management Board in accordance with the Commission's ISFMP Charter. The NMFS also participates on the Tautog Plan Development Team, Plan Review Team, Technical Committee and Stock Assessment Subcommittee.

4.14.7.3 Consultation with Fishery Management Councils

At the time of adoption of Amendment 1, none of the Regional Fishery Management Councils had implemented a management plan for tautog nor have they indicated an intention to develop a plan.

4.15 RECOMMENDATIONS TO THE SECRETARY FOR COMPLIMENTARY ACTIONS IN FEDERAL JURISDICTIONS

The ASMFC recommends the federal government promulgate all necessary regulations to implement compatible measures in the exclusive economic zone (EEZ). Specifically, the ASMFC recommends that the Secretary of Commerce fully implement regulations for tautog in the EEZ that are in accordance with state minimum sizes, possession limits, closed seasons, as well as other possession requirements for both the commercial and recreational fishery (Section 4.2).

4.16 COOPERATION WITH OTHER MANAGEMENT INSTITUTIONS

The Board will cooperate, if necessary, with other management institutions during the implementation of this amendment, including the National Marine Fisheries Service and the New England, Mid-Atlantic, and South Atlantic Fishery Management Council.

5.0 COMPLIANCE

Full implementation of the provisions of this amendment is necessary for the management program to be equitable, efficient and effective. States are expected to implement these measures faithfully under state laws. Although ASMFC does not have authority to directly compel states to implement these measures, it will continually monitor the effectiveness of state implementation and determine whether states are in compliance with the provisions of this fishery management plan. The Board sets forth specific elements that the Commission will consider in determining state compliance with this fishery management plan, and the procedures that will govern the evaluation of compliance. Additional details of the procedures are found in the ASMFC Interstate Fishery Management Program Charter (ASMFC 2016).

5.1 MANDATORY COMPLIANCE ELEMENTS FOR STATES

A state will be determined to be out of compliance with the provision of this fishery management plan according to the terms of Section Seven of the ISFMP Charter if:

- It fails to meet any schedule required by Section 5.1.2, or any addendum prepared under adaptive management (Section 4.12); or
- It has failed to implement a change to its program when determined necessary by the Tautog Management Board; or
- It makes a change to its regulations required under Section 4 or any addendum prepared under adaptive management (Section 4.12), without prior approval of the Tautog Management Board.

5.1.1 MANDATORY ELEMENTS OF STATE PROGRAMS

To be considered in compliance with this amendment, all state programs must include management measures for tautog fisheries consistent with the requirements listed throughout *Section 4.0 and Section 3.2.2.2 Fishery Independent Information—Biological Sampling Program*, except that a state may propose an alternative management program under Section 4.12, which, if approved by the Management Board, may be implemented as an alternative regulatory requirement for compliance.

5.1.1.1 Regulatory Requirements

States shall begin to implement Amendment 1 after final approval of the state's implementation proposal by the Commission. Each state must submit its required tautog regulatory program to the Commission through the ASMFC staff for approval by the Atlantic Tautog Management Board. During the period from submission and until the Management Board makes a decision on a state's program, a state may not adopt a less protective management program than contained in this amendment or contained in current state law.

Once approved by the Tautog Management Board, states are required to obtain approval from the Board prior to making any changes to their management program for which a compliance requirement is in effect. Other measures must be reported to the Board, but may be implemented without prior Board approval. A state can request permission to implement an alternative to any mandatory compliance measure only if that state can show to the Board's satisfaction that its alternative proposal will have the same conservation value as the measure contained in this management plan or any addenda prepared under Adaptive Management (Section 4.12). States submitting alternative proposals must demonstrate that the proposed action will not contribute to overfishing of the resource. All changes in state plans must be submitted in writing to the Board and to the Commission either as part of the annual FMP Review process or the Annual Compliance Reports.

5.1.1.2 Monitoring Requirements

All state programs must include the mandatory monitoring requirements contained in Sections 3.1, 3.2, and 3.3 and 4.4.7. States must submit proposals for all intended changes to required

monitoring programs, which may affect the quality of the data or the ability of the program to fulfill the needs of the fishery management plan. State proposals for making changes to required monitoring programs will be submitted to the Technical Committee at least two weeks prior to its spring or fall meeting. Proposals must be on a calendar year basis. The Technical Committee will make recommendations to the Management Board concerning whether the proposals are consistent with Amendment 1.

In the event that a state realizes it will not be able to fulfill its fishery independent monitoring requirements, it should immediately notify the Commission in writing. The Commission will work with the state to develop a plan to secure funding or plan an alternative program to satisfy the needs outlined in Amendment 6. If the plan is not implemented 90 days after it has been adopted, the state will be found out of compliance with Amendment 1.

5.1.1.3 Research Requirements

A prioritized list of research needs for tautog was created during the development of this FMP and can be found in Section 6.0. The PDT and Technical Committee will re-prioritize the research needs for tautog as part of the FMP Review or Stock Assessment process. Appropriate programs for meeting these needs may be implemented under *Section 4.12 (Adaptive Management)* through the Commission's addendum process including the opportunity for public comment.

5.1.1.4 Law Enforcement Requirements

All state programs must include law enforcement capabilities adequate for successfully implementing a state's tautog regulations. The adequacy of a state's enforcement activity will be monitored annually by reports of the ASMFC Law Enforcement Committee to the Tautog Plan Review Team.

5.1.2 Compliance Schedule

To be determined by the Tautog Management Board.

5.1.3 Compliance Report Content

Each state must submit an annual report concerning its tautog fisheries and management program for the previous fishing year. Reports should follow the tautog report outline as sent by the PRT chair each year. The report shall cover:

- the previous fishing year's fishery and management program including activity and results of monitoring (including the results of 200 age and length samples), a copy of regulations that were in effect and harvest broken down between recreational and commercial, including estimates of non-harvest losses; and
- commercial harvest tagging program requirements as described in Section 4.4.7
- the planned management program for the current fishing year summarizing regulations that will be in effect and monitoring programs that will be performed, highlighting any changes from the previous year.

5.2 PROCEDURES FOR DETERMINING NON-COMPLIANCE

Detailed procedures regarding compliance determinations are contained in the ISFMP Charter, Section 7 (ASMFC 2016). The following summary is not intended to replace the language found in the ISFMP Charter.

The Plan Review Team will continually review the status of state implementation, and advise the Management Board at any time that a question arises concerning state compliance. The PRT will review state reports submitted under Section 5.1.3 and prepare a report by May 1 for the Management Board summarizing the status of the resource and the fishery and the status of state compliance on a state-bystate basis.

Upon review of a report from the Plan Review Team, or at any time by request from a member of the Management Board, the Management Board will review the status of an individual state's compliance. If the Management Board finds that a state's approved regulatory management program fails to meet the requirements of this section, it may be recommended that the state be found out of compliance. The recommendation must include a specific list of the state's deficiencies in implementing and enforcing this Amendment and the actions that the state must take in order to come back into compliance.

If the Management Board recommends that a state be found out of compliance, as referred to in the preceding paragraph, it shall report that recommendation to the ISFMP Policy Board for further review according to the Commission's Charter for the Interstate Fisheries Management Program. The state that is out of compliance or subject to a recommendation by the Management Board under the preceding paragraph may request at any time that the Management Board reevaluate its program. The state shall provide a written statement concerning actions which justify a reevaluation. The Management Board shall promptly conduct such reevaluation, and if it agrees with the state, shall recommend to the ISFMP Policy Board that the noncompliance finding be withdrawn. The ISFMP Policy Board and Commission shall deal with the Management Board's recommendation according to the Commission's Charter for the Interstate Fisheries Management Program.

5.3 ANALYSIS OF ENFORCEABILITY OF MANAGEMENT MEASURES

The Law Enforcement Committee will, during the implementation of this amendment, analyze the enforceability of conservation and management measures as they are proposed.

6.0 MANAGEMENT AND RESEARCH NEEDS

The Technical Committee identified the following research recommendations in the 2015 benchmark stock assessment to improve future stock assessments and our understanding of tautog population and fishery dynamics. Research recommendations are organized by topic and level of priority. Research recommendations that should be completed before the next benchmark assessment are underlined.

6.1 FISHERY-DEPENDENT PRIORITIES

High

- Expand biological sampling of the commercial catch for each gear type over the entire range of the stock (including weight, lengths, age, sex, and discards).
- Continue collecting operculum from the tautog catch as the standard for biological sampling in addition to collecting paired sub-samples of otoliths and operculum.
- Increase catch and discard length sampling from the commercial and recreational fishery for all states from Massachusetts through Virginia.
- Increase collection of effort data for determining commercial and recreational CPUE.
- Increase MRIP sampling levels to improve recreational catch estimates by state and mode. Current sampling levels are high during times of the year when more abundant and popular species are abundant in catches, but much lower in early spring and late fall when tautog catches are more likely.

6.2 FISHERY-INDEPENDENT PRIORITIES

High

- Conduct workshop and pilot studies to design a standardized, multi-state fishery independent survey for tautog along the lines of MARMAP and the lobster ventless trap survey.
- Establish standardized multi-state long-term fisheries-independent surveys to monitor tautog abundance and length-frequency distributions, and to develop YOY indices.
- Enhance collection of age information for smaller fish (<20 cm) to better fill in age-length keys.

Low

- Investigate a nonlethal method for age determination based on pelvic-fin spines based on the Elzey and Trull, 2016 article.

6.3 LIFE HISTORY, BIOLOGICAL AND HABITAT PRIORITIES

Moderate

- Define local and regional movement patterns and site fidelity in the southern part of the species range. This information may provide insight into questions of aggregation versus

recruitment to artificial reef locations, and to clarify the need for local and regional assessment.

- Assemble regional reference collections of paired operculum and otolith samples and schedule regular exchanges to maintain and improve the precision of age readings between states that will be pooled in the regional age-length keys.
- Calibrate age readings every year by re-reading a subset of samples from previous years before ageing new samples. States that do not currently assess the precision of their age readings over time should do so by re-ageing a subset of their historical samples.

Low

- Evaluate the potential impacts of climate change on tautog range, life history, and productivity.
- Conduct a tag retention study to improve return rates, particularly in the northern region.
- Define the status (condition and extent) of optimum or suitable juvenile habitats and trends in specific areas important to the species. It is critical to protect these habitats or to stimulate restoration or enhancement, if required.
- Define the specific spawning and pre-spawning aggregating areas and wintering areas of juveniles and adults used by all major local populations, as well as the migration routes used by tautog to get to and from spawning and wintering areas and the criteria or times of use. This information is required to protect these areas from damage and overuse or excessive exploitation.
- Define larval diets and prey availability requirements. This information can be used as determinants of recruitment success and habitat function status. Information can also be used to support aquaculture ventures with this species.
- Define the role of prey type and availability in local juvenile/adult population dynamics over the species range. This information can explain differences in local abundance, movements, growth, fecundity, etc. Conduct studies in areas where the availability of primary prey, such as blue mussels or crabs, is dependent on annual recruitment, the effect of prey recruitment variability as a factor in tautog movements (to find better prey fields), mortality (greater predation exposure when leaving shelter to forage open bottom), and relationship between reef prey availability/quality on tautog condition/fecundity.
- Define the susceptibility of juveniles to coastal/anthropogenic contamination and resulting effects. This information can explain differences in local abundance, movements, growth, fecundity, and serve to support continued or increased regulation of the inputs of these contaminants and to assess potential damage. Since oil spills seem to be a too frequent coastal impact problem where juvenile tautog live, it may be helpful to conduct specific studies on effects of various fuel oils and typical exposure concentrations, at various seasonal temperatures and salinities. Studies should also be conducted to evaluate the effect of common piling treatment leachates and common antifouling paints on YOY tautog. The synergistic effects of leaked fuel, bilge water, treated pilings, and antifouling paints on tautog health should also be studied.

- Define the source of offshore eggs and larvae (in situ or washed out coastal spawning).
- Confirm that tautog, like cunner, hibernate in the winter, and in what areas and temperature thresholds, for how long, and if there are special habitat requirements during these times that should be protected or conserved from damage or disturbance. This information will aid in understanding behavior variability and harvest availability.

6.4 MANAGEMENT, LAW ENFORCEMENT AND SOCIOECONOMIC PRIORITIES

Moderate

- Collect data to assess the magnitude of illegal harvest of tautog.

Low

- Collect basic sociocultural data on tautog user groups including demographics, location, and aspects of fishing practices such as seasonality.

6.5 RESEARCH RECOMMENDATIONS THAT HAVE BEEN MET

- ✓ Sample hard parts for annual ageing from the catches of recreational and commercial fisheries and fishery-independent surveys throughout the range of the stock. *Being conducted by all participating states.*

- ✓ Conduct hard part exchange and ageing workshop to standardize techniques and assess consistency across states. Conducted May 2012, report available at http://www.asmfc.org//uploads/file/2012_Tautog_Ageing_Workshop_Report.pdf

7.0 PROTECTED RESOURCES

In the fall of 1995, Commission member states, the National Marine Fisheries Service (NMFS) and the U.S. Fish and Wildlife Service (USFWS) began discussing ways to improve implementation and enforcement of the Marine Mammal Protection Act (MMPA) and the Endangered Species Act (ESA) in state waters. In November 1995, the Commission, through its Interstate Fisheries Management Program (ISFMP) Policy Board, approved an amendment of its ISFMP Charter (section 6(b)(2)) so that protected species and their interactions with ASMFC managed fisheries are addressed in the Commission's fisheries management planning process. Specifically, the Commission's fishery management plans (FMP) will describe impacts of state fisheries on certain marine mammals and endangered species (collectively termed “protected species”), and recommend ways to minimize these impacts. The following section outlines: (1) the federal legislation that guides protection of marine mammals and sea turtles, (2) the protected species with potential fishery interactions; and (3) the specific type(s) of fishery interaction.

7.1 MARINE MAMMAL PROTECTION ACT (MMPA) REQUIREMENTS

The 1994 amendments to the MMPA established both short- and long-term goals for reducing mortality and serious injury, or bycatch, of marine mammal's incidental to commercial fisheries. The amendments also established take reduction plans (TRPs) and stakeholder-based take reduction teams (TRTs) as the mechanisms for achieving these goals. The MMPA requires NMFS to convene TRTs to develop TRPs for each strategic stock that interacts with a Category I or II fishery, fisheries with "frequent" or "occasional" marine mammal bycatch, respectively. (Fisheries that have a remote likelihood of or no known bycatch of marine mammals are classified in Category III.) A strategic stock is defined as a stock: (1) for which the level of direct human-caused mortality exceeds the potential biological removal (PBR)[1] level; (2) which is declining and is likely to be listed under the ESA in the foreseeable future; or (3) which is listed as a threatened or endangered species under the ESA or as a depleted species under the MMPA. In the short-term (within six months of implementation), TRPs must reduce marine mammal bycatch to levels below a marine mammals stock's potential biological removal level. In the long-term (within five years of implementation), TRPs must reduce marine mammal bycatch to insignificant levels approaching a zero mortality and serious injury rate taking into account the economics of the fishery, the availability of existing technology, and existing state or regional fishery management plans.

The 1994 amendments also required fishermen in Category I and II fisheries to register under the Marine Mammal Authorization Program (MMAP), the purpose of which is to provide an exception for commercial fishermen from the general taking prohibitions of the MMPA; to take on board an observer if requested to do so by the Secretary of Commerce; and to comply with any applicable TRP or emergency regulations. All commercial fishermen, regardless of the category of the fishery in which they participate, must report all marine mammal bycatch.

7.2 ENDANGERED SPECIES ACT REQUIREMENTS

The taking of endangered sea turtles and marine mammals is prohibited under section 9 of the ESA. NMFS may issue section 4(d) protective regulations necessary and advisable to provide for the conservation of threatened species. There are several mechanisms established in the ESA that exempt take prohibitions set forth in section 9. First, a 4(d) regulation may include less stringent requirements intended to reduce incidental take and thus allow for the exemption from the taking prohibition. Section 10(a)(1)(B) of the ESA authorizes NMFS to permit, under prescribed terms and conditions, any taking otherwise prohibited by section 9 of the ESA, if the taking is incidental to, and not the purpose of, carrying out an otherwise lawful activity. Finally, section 7(a)(2) requires NMFS to consult with each federal agency to ensure that any action that is authorized, funded, or carried out by such agency is not likely to jeopardize the continued existence of any listed species. Pursuant to Section 7(b), formal consultation will be

[1] PBR is the number of human-caused deaths per year each stock can withstand and still reach an optimum population level. This is calculated by multiplying "the minimum population estimate" by "½ stock's net productivity rate" by "a recovery factor ranging from 0.1 for endangered species to 1.0 for healthy stocks."

completed on any action that may adversely affect and/or result in the destruction or adverse modification of critical habitat. Formal consultation will conclude with NMFS issuing a Biological Opinion which will include an incidental take statement containing reasonable and prudent measures and terms and conditions that minimize take and must be complied for otherwise prohibited take to be authorized.

7.3 PROTECTED RESOURCES IN THE MANAGEMENT UNIT

Numerous protected species inhabit the environment within the tautog management unit (Table 33). These species are under NMFS jurisdiction and are afforded protection under the Endangered Species Act (ESA) of 1973 and/or the Marine Mammal Protection Act (MMPA) of 1972.

Table 33. Species protected under the ESA and/or MMPA that may occur in the affected environment of the tautog fishery. Marine mammal species (cetaceans and pinnipeds) italicized and in bold are considered MMPA strategic stocks.[1]

Species	Status[2]	Potentially affected by this action?
Cetaceans		
North Atlantic right whale (Eubalaena glacialis)	***Endangered***	***Yes***
Humpback whale, West Indies DPS (Megaptera novaeangliae)	***Protected (MMPA)***	***Yes***
Fin whale (Balaenoptera physalus)	***Endangered***	***Yes***
Sei whale (Balaenoptera borealis)	***Endangered***	***Yes***
Minke whale (*Balaenoptera acutorostrata*)	Protected (MMPA)	Yes
Pilot whale (*Globicephala spp*.)[3]	Protected (MMPA)	Yes
Risso's dolphin (*Grampus griseus*)	Protected (MMPA)	Yes
Atlantic white-sided dolphin (*Lagenorhynchus acutus*)	Protected (MMPA)	Yes
Short Beaked Common dolphin (*Delphinus delphis*)[4]	Protected (MMPA)	Yes
Spotted dolphin (*Stenella frontalis*)	Protected (MMPA)	No
Bottlenose dolphin (Tursiops truncatus)[5]	***Protected (MMPA)***	***Yes***
Harbor porpoise (Phocoena phocoena)	*Protected (MMPA)*	*No*
Sea Turtles		
Leatherback sea turtle (*Dermochelys coriacea*)	Endangered	Yes
Kemp's ridley sea turtle (*Lepidochelys kempii*)	Endangered	Yes
Green sea turtle, North Atlantic DPS (*Chelonia mydas*)	Threatened	Yes
Loggerhead sea turtle (*Caretta caretta*), Northwest Atlantic Ocean DPS	Threatened	Yes
Hawksbill sea turtle (*Eretmochelys imbricate*)	Endangered	No

Fish		
Shortnose sturgeon (*Acipenser brevirostrum*)	Endangered	No
Atlantic salmon (*Salmo salar*)	Endangered	Yes
Atlantic sturgeon *(Acipenser oxyrinchus)*		
Gulf of Maine DPS	Threatened	Yes
New York Bight DPS, Chesapeake Bay DPS, Carolina DPS & South Atlantic DPS	Endangered	Yes
Cusk	Candidate	Yes
Pinnipeds		
Harbor seal (*Phoca vitulina*)	Protected (MMPA)	Yes
Gray seal (*Halichoerus grypus*)	Protected (MMPA)	Yes
Harp seal (*Phoca groenlandicus*)	Protected (MMPA)	Yes
Hooded seal (*Cystophora cristata*)	Protected (MMPA)	Yes
Critical Habitat		
North Atlantic Right Whale[6]	ESA (Protected)	No

Notes:
[1] A strategic stock is defined under the MMPA as a marine mammal stock for which: (1) the level of direct human-caused mortality exceeds the potential biological removal level; (2) based on the best available scientific information, is declining and is likely to be listed as a threatened species under the ESA within the foreseeable future; and/or (3) is listed as a threatened or endangered species under the ESA, or is designated as depleted under the MMPA (Section 3 of the MMPA of 1972).
[2] The status of the species is defined by whether the species is listed under the ESA as endangered (species are at risk of extinction) or threatened (species at risk of endangerment), or protected under the MMPA. Note, marine mammals listed under the ESA are also protected under the MMPA. Candidate species are those species in which ESA listing may be warranted.
3 There are two species of pilot whales: short finned (G. melas melas) and long finned (G. macrorhynchus). Due to the difficulties in identifying the species at sea, they are often just referred to as Globicephala spp.
4 Prior to 2008, this species was called “common dolphin.”
5 This includes the following Stocks of Bottlenose Dolphins: Western North Atlantic Offshore, Northern Migratory Coastal (strategic stock), and Southern Migratory Coastal (strategic stock).
[6] Originally designated June 3, 1994 (59 FR 28805); Expanded on January 27, 2016 (81 FR 4837).

Cusk are a NMFS "candidate species" under the ESA. Candidate species are those petitioned species for which NMFS has determined that listing may be warranted under the ESA and those species for which NMFS has initiated an ESA status review through an announcement in the Federal Register. If a species is proposed for listing, the conference provisions under Section 7 of the ESA apply (see 50 CFR 402.10); however, candidate species receive no substantive or procedural protection under the ESA. As a result, this species will not be discussed further in this and the following sections; however, NMFS recommends that project proponents consider implementing conservation actions to limit the potential for adverse effects on cusk from any

proposed action. Additional information on cusk can be found at http://www.nmfs.noaa.gov/pr/species/esa/candidate.htm

7.4 SPECIES AND CRITICAL HABITAT NOT LIKELY AFFECTED BY THE FMP

Based on available information, it has been determined that the FMP is not likely to affect multiple ESA listed and/or marine mammal protected species or any designated critical habitat (see Table 33). This determination has been made because either the occurrence of the species is not known to overlap with the area primarily affected by the action and/or there have never been documented interactions between the species and the primary gear type (i.e., hook and line and pot/trap) used to prosecute the tautog fishery (see Waring *et al*. 2014, 2015, 2016; NMFS NEFSC FSB 2015, 2016; http://www.nefsc.noaa.gov/fsb/take_reports/nefop.html). In the case of critical habitat, this determination has been made because the action will not affect the essential physical and biological features of North Atlantic right whale critical habitat and therefore, will not result in the destruction or adverse modification of this species critical habitat (NMFS 2015a,b).

7.5 SPECIES POTENTIALLY AFFECTED BY THE FMP

Table 33 provides a list of sea turtle, marine mammal, and fish species present in the affected environment of the tautog fishery, and that may also be affected by the operation of this fishery. Of primary concern is the potential for the fishery to interact (e.g., bycatch, entanglement) with these species. To understand the potential risk of an interaction, it is necessary to consider (1) species occurrence in the affected environment of the fishery and how the fishery will overlap in time and space with this occurrence; and (2) data and observed records of protected species interaction with particular fishing gear types. Information on species occurrence in the affected environment of the tautog fishery is provided in this section, while information on protected species interactions with specific fishery gear is provided in Section 7.6.

7.5.1 Sea Turtles

Green (North Atlantic DPS), Kemp's ridley, leatherback, and loggerhead (Northwest Atlantic Ocean DPS) sea turtle are the four ESA listed species of sea turtles that occur in the area of operation for the 13 GAR fisheries (see Table 33). Three of the four species are considered hard-shelled turtles (i.e., green, loggerhead, and Kemp's ridley). Additional background information on the range-wide status of the other four species, as well as a description and life history of the species, can be found in a number of published documents, including sea turtle status reviews and biological reports (NMFS and USFWS 1995; Hirth 1997; Turtle Expert Working Group [TEWG] 1998, 2000, 2007, 2009; Conant *et al*. 2009; NMFS and USFWS 2007a,b, 2013, 2015; Seminoff *et al*. 2015), and recovery plans for the loggerhead sea turtle (Northwest Atlantic DPS; NMFS and USFWS 2008), leatherback sea turtle (NMFS and USFWS 1992), Kemp's ridley sea turtle (NMFS *et al.* 2011), and green sea turtle (NMFS and USFWS 1991).

Hard-shelled Sea Turtles

Distribution

In U.S. Northwest Atlantic waters, hard-shelled turtles commonly occur throughout the continental shelf from Florida (FL) to Cape Cod, Massachusetts (MA), although their presence varies with the seasons due to changes in water temperature (Shoop and Kenney 1992; Epperly *et al.* 1995a, 1995b; Braun and Epperly 1996; Mitchell *et al.* 2003; Braun-McNeill *et al.* 2008; TEWG 2009). While hard-shelled turtles are most common south of Cape Cod, MA, they are known to occur in the Gulf of Maine (GOM). Loggerheads, the most common hard-shelled sea turtle in the GAR, feed as far north as southern Canada. Loggerheads have been observed in waters with surface temperatures of 7 °C to 30 °C, but water temperatures ≥11 °C are most favorable (Shoop and Kenney 1992; Epperly *et al.* 1995b). Sea turtle presence in U.S. Atlantic waters is also influenced by water depth. While hard-shelled turtles occur in waters from the beach to beyond the continental shelf, they are most commonly found in neritic waters of the inner continental shelf (Mitchell *et al.* 2003; Braun-McNeill and Epperly 2002; Morreale and Standora 2005; Blumenthal *et al.* 2006; Hawkes *et al.* 2006; McClellan and Read 2007; Mansfield *et al.* 2009; Hawkes *et al.* 2011; Griffin *et al.* 2013).

Seasonality

Hard-shelled sea turtles occur year-round in waters off Cape Hatteras, North Carolina (NC) and south. As coastal water temperatures warm in the spring, loggerheads begin to migrate to inshore waters of the southeast United States and also move up the Atlantic Coast (Epperly *et al.* 1995a, 1995b, 1995c; Braun-McNeill and Epperly 2002; Morreale and Standora 2005; Griffin *et al.* 2013), occurring in Virginia (VA) foraging areas as early as late April and on the most northern foraging grounds in the GOM in June (Shoop and Kenney 1992). The trend is reversed in the fall as water temperatures cool. The large majority leave the GOM by September, but some remain in Mid-Atlantic and Northeast areas until late fall. By December, sea turtles have migrated south to waters offshore of NC, particularly south of Cape Hatteras, and further south (Shoop and Kenney 1992; Epperly *et al.* 1995b; Hawkes *et al.* 2011; Griffin *et al.* 2013).

Leatherback Sea Turtles (Non-Hard Shelled Sea Turtles)

Leatherbacks, a pelagic species, are known to use coastal waters of the U.S. continental shelf and to have a greater tolerance for colder water than hard-shelled sea turtles (James *et al.* 2005; Eckert *et al.* 2006; Murphy *et al.* 2006; NMFS and USFWS 2013; Dodge *et al.* 2014). Leatherback sea turtles engage in routine migrations between northern temperate and tropical waters (NMFS and USFWS 1992; James *et al.* 2005; James *et al*. 2006; Dodge *et al.* 2014). They are found in more northern waters (i.e., Gulf of Maine) later in the year (i.e., similar time frame as hard-shelled sea turtles), with most leaving the Northwest Atlantic shelves by mid-November (James *et al.* 2005; James *et al*. 2006; Dodge *et al.* 2014).

7.5.2 Marine Mammals

7.5.2.1 Large Whales

As provided in Table 34, as North Atlantic right, humpback, fin, sei, and minke whales are found throughout the waters of the Northwest Atlantic Ocean, these species will occur in the affected environment of the tautog fishery. In general, these species follow an annual pattern of migration between low latitude (south of 35°N) wintering/calving grounds and high latitude spring/summer foraging grounds (primarily north of 41°N; Waring *et al*. 2014; Waring *et al*. 2015; Waring *et al*. 2016; NMFS 1991, 2005, 2010, 2011a, 2012). This, however, is a simplification of whale movements, particularly as it relates to winter movements. It remains unknown if all individuals of a population migrate to low latitudes in the winter, although, increasing evidence suggests that for some species (e.g., right and humpback whales), some portion of the population remains in higher latitudes throughout the winter (Waring *et al*. 2014; Waring *et al*. 2015; Waring *et al*. 2016; Khan *et al*. 2009, 2010, 2011, 2012; Brown *et al*. 2002; NOAA 2008; Cole *et al*. 2013; Clapham *et al*. 1993; Swingle *et al*. 1993; Vu *et al*. 2012). Although further research is needed to provide a clearer understanding of large whale movements and distribution in the winter, the distribution and movements of large whales to foraging grounds in the spring/summer is well understood. Movements of whales into higher latitudes coincide with peak productivity in these waters. As a result, the distribution of large whales in higher latitudes is strongly governed by prey availability and distribution, with large numbers of whales coinciding with dense patches of preferred forage (Mayo and Marx 1990; Kenney *et al*. 1986, 1995; Baumgartner *et al*. 2003; Baumgartner and Mate 2003; Payne *et al*.1986, 1990; Brown *et al.* 2002; Kenney and Hartley 2001; Schilling *et al.* 1992). For additional information on the biology, status, and range wide distribution of each whale species please refer to: Waring *et al*. 2014; Waring *et al*. 2015; Waring *et al*. 2016; NMFS 1991, 2005, 2010, 2011a, 2012.

To further assist in understanding how the tautog fishery may overlaps in time and space with the occurrence of large whales, a general overview on species occurrence and distribution in the area of operation for the tautog fishery is provided in the following table (Table 34).

Table 34. Large whale occurrence in the area of operation for the tautog fishery

Species	Prevalence and Approximate Months of Occurrence
North Atlantic Right Whale	• Distributed throughout all continental shelf waters from the GOM to the South Atlantic Bight (SAB) throughout the year; however, increasing evidence of year round presence in the GOM. • New England waters (GOM and GB regions) = **Foraging Grounds** (January through October)). Seasonally important foraging grounds include, but not limited to: › Cape Cod Bay (January-April);

Species	Prevalence and Approximate Months of Occurrence
	› Great South Channel (April-June); › western Gulf of Maine (April-May, and July-October); › Jordan Basin (August-October); › Wilkinson Basin (April-July); and › northern edge of GB (May-July); • Mid-Atlantic waters: Migratory pathway to/from northern (high latitude) foraging and southern calving grounds. • Increasing evidence of wintering areas (approximately November – January) in: › Cape Cod Bay; › Jeffreys and Cashes Ledges; › Jordan Basin; and › Massachusetts Bay (e.g., Stellwagen Bank).
Humpback	• Distributed throughout all continental shelf waters of the Mid-Atlantic (SNE included), GOM, and GB throughout the year. • New England waters (GOM and GB regions) = **Foraging Grounds** (March-November). • Mid-Atlantic waters: Migratory pathway to/from northern (high latitude) foraging and southern (West Indies) calving grounds. • Increasing evidence of whales remaining in mid- and high- latitudes throughout the winter. Specifically, increasing evidence of wintering areas (for juveniles) in Mid-Atlantic (e.g., waters in the vicinity of Chesapeake and Delaware Bays; peak presence approximately January through March) and Southeastern coastal waters.
Fin	• Distributed throughout all continental shelf waters of the Mid-Atlantic (SNE included), GOM, and GB throughout the year. • Mid-Atlantic waters: › Migratory pathway to/from northern (high latitude) foraging and southern (low latitude) calving grounds; and › Possible offshore calving area (October-January). • New England(GOM and GB)/SNE waters = **Foraging Grounds** (greatest densities March-August; lower densities September-November).Important foraging grounds include: > Massachusetts Bay (esp. Stellwagen Bank);

Species	Prevalence and Approximate Months of Occurrence
	> Great South Channel; > Waters off Cape Cod (~40-50 meter contour); > GOM; > Perimeter (primarily eastern) of GB; and > Mid-shelf area off the east end of Long Island. • Evidence of wintering areas in mid-shelf areas east of New Jersey (NJ), Stellwagen Bank; and eastern perimeter of GB.
Sei	• Uncommon in shallow, inshore waters of the Mid-Atlantic (SNE included), GB, and GOM; however, occasional incursions during peak prey availability and abundance. • Primarily found in deep waters along the shelf edge, shelf break, and ocean basins between banks. • Spring through summer, found in greatest densities in offshore waters of the GOM and GB; sightings concentrated along the northern, eastern (into Northeast Channel) and southwestern (in the area of Hydrographer Canyon) edge of GB.
Minke	• Widely distributed throughout continental shelf waters (<100m deep) of the Mid-Atlantic (SNE included), GOM, and GB. • Most common in the EEZ from spring through fall, with greatest abundance found in New England waters.
***Sources*:** NMFS 1991, 2005, 2010, 2011a, 2012; Hain *et al.* 1992; Payne *et al*. 1984; Good 2008; Pace and Merrick 2008; McLellan *et al*. 2004; Hamilton and Mayo 1990; Schevill *et al*. 1986; Watkins and Schevill 1982; Payne *et al*.1990; Winn *et al.* 1986; Kenney et al. 1986, 1995; Khan *et al*. 2009, 2010, 2011, 2012; Brown *et al*. 2002; NOAA 2008; 50 CFR 224.105; CETAP 1982; Clapham *et al*. 1993; Swingle *et al*. 1993; Vu *et al*. 2012; Baumgartner *et al*. 2011; Cole *et al*. 2013; Risch *et al*. 2013; Waring *et al*. 2014; Waring *et al*. 2015; Waring *et al*. 2016; 81 FR 4837(January 27, 2016); NMFS 2015b; Bort et al. 2015.	

7.5.3 Small Cetacean

As provided in Table 35, as Atlantic white sided dolphins, short and long finned pilot whales, Risso's dolphins, short beaked common dolphins, harbor porpoise, and several stocks of bottlenose dolphins are found throughout the year in the Northwest Atlantic Ocean, these species will occur in the affected environment of the tautog fishery (Waring *et al*. 2014; Waring *et al*. 2015; Waring *et al*. 2016). Within this range; however, there are seasonal shifts in species distribution and abundance. To further assist in understanding how fisheries may overlap in time and space with the occurrence of small cetaceans, a general overview of species occurrence and distribution in the area of operation for the tautog fishery is provided in the following table (Table 35). For additional information on the biology, status, and range wide distribution of each species please refer to Waring *et al*. (2014), Waring *et al.* (2015), and Waring *et al*. (2016).

Table 35. Small cetacean occurrence in the area of operation of the tautog fishery.

Species	Prevalence and Approximate Months of Occurrence
Atlantic White Sided Dolphin	• Distributed throughout the continental shelf waters (primarily to 100 meter isobath) of the Mid-Atlantic (north of 35°N), SNE, GB, and GOM ; however, most common in continental shelf waters from Hudson Canyon (~ 39°N) to GB, and into the GOM. • **January-May**: low densities found from GB to Jeffreys Ledge. • **June-September**: Large densities found from GB, through the GOM. • **October-December**: intermediate densities found from southern GB to southern GOM. • South of GB (SNE and Mid-Atlantic), low densities found year round, with waters off Virginia (VA) and NC representing southern extent of species range during winter months.
Short Beaked Common Dolphin	• Regularly found throughout the continental shelf-edge-slope waters (primarily between the 100-2,000 meter isobaths) of the Mid-Atlantic, SNE, and GB (esp. in Oceanographer, Hydrographer, Block, and Hudson Canyons). • Less common south of Cape Hatteras, NC, although schools have been reported as far south as the Georgia (GA)/South Carolina (SC) border. • **January-May**: occur from waters off Cape Hatteras, NC, to GB (35° to 42°N). • **Mid-summer-autumn**: Occur primarily on GB with small numbers present in the GOM; *Peak abundance* found on GB in the autumn.
Risso's Dolphin	• **Spring through fall**: Distributed along the continental shelf edge from Cape Hatteras, NC, to GB. • **Winter**: distributed in the Mid-Atlantic Bight, extending into oceanic waters. • Rarely seen in the GOM; primarily a Mid-Atlantic continental shelf edge species (can be found year round).

Species	Prevalence and Approximate Months of Occurrence
Harbor Porpoise	• Distributed throughout the continental shelf waters of the Mid-Atlantic (north of 35°N), SNE, GB, and GOM. • **July-September**: Concentrated in the northern GOM (waters < 150 meters); low numbers can be found on GB. • **October-December**: widely dispersed in waters from NJ to Maine (ME); seen from the coastline to deep waters (>1,800 meters). • **January-March**: intermediate densities in waters off NJ to NC; low densities found in waters off New York (NY) to GOM. • **April-June**: widely dispersed from NJ to ME; seen from the coastline to deep waters (>1,800 meters).
Bottlenose Dolphin	**Western North Atlantic Offshore Stock** • Distributed primarily along the outer continental shelf and continental slope in the Northwest Atlantic from GB to FL. • Depths of occurrence: ≥40 meters **Western North Atlantic Northern Migratory Coastal Stock** • Warm water months (e.g., July-August): distributed from the coastal waters from the shoreline to approximately the 25-meter isobaths between the Chesapeake Bay mouth and Long Island, NY. • Cold water months (e.g., January-March): stock occupies coastal waters from Cape Lookout, NC, to the NC/VA border. **Western North Atlantic Southern Migratory Coastal Stock** • **October-December**: stock occupies waters of southern NC (south of Cape Lookout) • **January-March**: stock moves as far south as northern FL. • **April-June**: stock moves north to waters of NC. • **July-August**: stock is presumed to occupy coastal waters north of Cape Lookout, NC, to the eastern shore of VA.

Species	Prevalence and Approximate Months of Occurrence
Pilot Whales: *Short- and Long-Finned*	**Short- Finned Pilot Whales** • Except for area of overlap (see below), primarily occur south of 40°N (Mid-Atl and SNE waters); although low numbers have been found along the southern flank of GB, but no further than 41°N. • May through December (approximately): distributed primarily near the continental shelf break of the Mid-Atlantic and SNE; individuals begin shifting to southern waters (i.e., 35°N and south) beginning in the fall. **Long-Finned Pilot Whales** • Except for area of overlap (see below), primarily occur north of 42°N. • Winter to early spring (November through April): primarily distributed along the continental shelf edge-slope of the Mid-Atlantic, SNE, and GB. • Late spring through fall (May through October): movements and distribution shift onto/within GB, the Great South Channel, and the GOM. **Area of Species Overlap:** between approximately 38°N and 41°N.

Notes : [1] Information presented in table is representative of small cetacean occurrence in the Northwest Atlantic continental shelf waters out to the 2,000 meter isobath.

Sources**:** Waring *et al*. 1992, 2007**,** 2014, 2015, 2016**;** Payne and Heinemann 1993; Payne *et al.* 1984; Jefferson *et al*. 2009.

7.5.4 Pinnipeds

As provided in Table 36, harbor, gray, harp, and hooded seals will occur in the affected environment of the tautog fishery. Specifically, pinnipeds are found in the nearshore, coastal waters of the Northwest Atlantic Ocean. They are primarily found throughout the year or seasonally from New Jersey to Maine; however, increasing evidence indicates that some species (e.g., harbor seals) may be extending their range seasonally into waters as far south as Cape Hatteras, North Carolina (35°N) (Waring *et al*. 2007, 2014, 2015, 2016). To further assist in understanding how the tautog fishery may overlap in time and space with the occurrence of

pinnipeds, a general overview of species occurrence and distribution in the area of operation of the tautog fishery is provided in the following table. For additional information on the biology, status, and range wide distribution of each species of pinniped please refer to Waring *et al*. (2007), Waring *et al*. (2014), Waring *et al*. (2015), Waring *et al*. (2016).

Table 36. Pinniped occurrence in the area of operation of the tautog fishery.

Species	Prevalence
Harbor Seal	• Primarily distributed in waters from NJ to ME; however, increasing evidence indicates that their range is extending into waters as far south as Cape Hatteras, NC (35°N). • **Year Round**: Waters of ME • **September-May**: Waters from New England to NJ.
Gray Seal	• Distributed in waters from NJ to ME. • **Year Round**: Waters from ME to MA. • **September-May**: Waters from Rhode Island to NJ.
Harp Seal	• Winter-Spring (approximately January-May): Waters from ME to NJ.
Hooded Seal	• Winter-Spring (approximately January-May): Waters of New England.
***Sources*:** Waring *et al*. 2007 (for hooded seals); Waring *et al*. 2014; Waring *et al*. 2015;Waring *et al*. 2016.	

7.5.5 Atlantic Sturgeon

Table 37 lists the 5 DPSs of Atlantic sturgeon that occur in the affected environment of the tautog fishery and that may be affected by the operation of this fishery. The marine range of U.S. Atlantic sturgeon extends from Labrador, Canada, to Cape Canaveral, Florida. All five DPSs of Atlantic sturgeon have the potential to be located anywhere in this marine range; in fact, results from genetic studies show that, regardless of location, multiple DPSs can be found at any one location along the Northwest Atlantic coast (ASSRT 2007; Dovel and Berggren 1983; Dadswell *et al*. 1984; Kynard *et al*. 2000; Stein *et al*. 2004a; Dadswell 2006; Laney *et al*. 2007; Dunton *et al*. 2010; Dunton *et al*. 2012; Dunton *et al*. 2015; Erickson *et al*. 2011; Wirgin *et al*. 2012; O'Leary *et al*. 2014; Waldman *et al.* 2013; Wirgin *et al*. 2015a,b).

Table 37. Atlantic Sturgeon DPSs that occur in the area of operation for the tautog fishery

Species	Listed Under the ESA
Gulf of Maine (GOM) DPS	threatened
New York Bight (NYB) DPS	endangered
Chesapeake Bay (CB) DPS	endangered
Carolina DPS	endangered
South Atlantic (SA) DPS	endangered

Based on fishery- independent and dependent data, as well as data collected from tracking and tagging studies, in the marine environment, Atlantic sturgeon appear to primarily occur inshore of the 50 meter depth contour (Stein *et al*. 2004 a,b; Erickson *et al*. 2011; Dunton *et al*. 2010); however, Atlantic sturgeon are not restricted to these depths, as excursions into deeper continental shelf waters have been documented (Timoshkin 1968; Collins and Smith 1997; Stein *et al*. 2004a,b; Dunton *et al*. 2010; Erickson *et al*. 2011). Data from fishery-independent surveys and tagging and tracking studies also indicate that some Atlantic sturgeon may undertake seasonal movements along the coast (Erickson *et al.* 2011; Dunton *et al*. 2010; Wipplehauser 2012). For instance, tagging and tracking studies found that satellite-tagged adult sturgeon from the Hudson River concentrated in the southern part of the Mid-Atlantic Bight, at depths greater than 20 meters, during winter and spring, while in the summer and fall, Atlantic sturgeon concentrations shifted to the northern portion of the Mid-Atlantic Bight at depths less than 20 meters (Erickson *et al.* 2011).

Within the marine range of Atlantic sturgeon, several marine aggregation areas have been identified adjacent to estuaries and/or coastal features formed by bay mouths and inlets along the U.S. eastern seaboard (i.e., waters off North Carolina, Chesapeake Bay, and Delaware Bay; New York Bight; Massachusetts Bay; Long Island Sound; and Connecticut and Kennebec River Estuaries); depths in these areas are generally no greater than 25 meters (Bain *et al.* 2000; Savoy and Pacileo 2003; Stein *et al*. 2004a; Laney *et al*. 2007; Dunton *et al*. 2010; Erickson *et al*. 2011; Oliver *et al*. 2013; Waldman *et al.* 2013; O'Leary *et al*. 2014; Wipplehauser 2012; Whipplehauser and Squiers 2015). Although additional studies are still needed to clarify why these particular sites are chosen by Atlantic sturgeon, there is some indication that they may serve as thermal refuge, wintering sites, or marine foraging areas (Stein *et al*. 2004a; Dunton *et al*. 2010; Erickson *et al*. 2011).

7.5.6 Atlantic Salmon (Gulf of Maine DPS)

The wild populations of Atlantic salmon are listed as endangered under the ESA. Their freshwater range occurs in the watersheds from the Androscoggin River northward along the Maine coast to the Dennys River, while the marine range of the GOM DPS extends from the GOM (primarily northern portion of the GOM), to the coast of Greenland (Fay *et al*. 2006; NMFS

& USFWS 2005, 2016). In general, smolts, post-smolts, and adult Atlantic salmon may be present in the GOM and coastal waters of Maine in the spring (beginning in April), and adults may be present throughout the summer and fall months (Baum 1997; Fay *et al*. 2006; Hyvarinen *et al*. 2006; Lacroix & Knox 2005; Lacroix & McCurdy 1996; Lacroix *et al*. 2004; NMFS & USFWS 2005, 2016; Reddin 1985; Reddin & Friedland 1993; Reddin & Short 1991). For additional information on the on the biology, status, and range wide distribution of the GOM DPS of Atlantic salmon, refer to NMFS and USFWS (2005, 2016); Fay *et al*. (2006).

7.6 INTERACTIONS BETWEEN GEAR AND PROTECTED RESOURCES

Protected species in Table 33 are all known to be vulnerable to interactions with various types of fishing gear. Available information on gear interactions with a given species (or species group) is provided in the sections below. These sections are not a comprehensive review of all fishing gear types known to interact with a given species; emphasis is only being placed on the primary gear types used to prosecute the tautog fishery (i.e., hook and line and pot/trap gear).

7.6.1 Marine Mammals

Pursuant to the MMPA, NMFS publishes a List of Fisheries (LOF) annually, classifying U.S. commercial fisheries into one of three categories based on the relative frequency of incidental serious injuries and/or mortalities of marine mammals in each fishery (i.e., Category I=frequent; Category II=occasional; Category III=remote likelihood or no known interactions; 82 FR 3655 (January 12, 2017)). In the Northwest Atlantic, the 2017 MMPA LOF (82 FR 3655 (January 12, 2017) categorizes commercial Northeast and Mid-Atlantic bottom trawl, and Atlantic mixed species trap/pot fisheries as Category II fisheries.2 General hook and line gear associated with rod and reel fishing has not been categorized as it is primarily prosecuted by recreational fisheries.

7.6.2 Large Whales

7.6.2.1 Hook and Line Gear

Large whales are known to interact with hook and line gear; however, in the most recent (2010-2014) mortality and serious injury determinations for baleen whales, the majority of cases identified with confirmed hook and line or monofilament entanglement did not result in the serious injury or mortality to the whale (89.5% observed/reported whales had a serious injury value of 0; 10.5% had a serious injury value of 0.75; none of the cases resulted in mortality; Henry *et al*. 2016).[3] In fact, 85.0% of the whales observed or reported with a hook/line or monofilament entanglement were resighted gear free and healthy; confirmation of the health of the other remaining whales remain unknown as no resightings had been made over the timeframe of the assessment (Henry *et al*. 2016). Based on this information, while large whale

2 Atlantic mixed species trap/pot fisheries include, but are not limited to: crab (red, Jonah, and rock), hagfish, finfish (black sea bass, scup, tautog, cod, haddock, pollock, redfish (ocean perch), and white hake), conch/whelk, and shrimp

3 Any injury leading to a significant health decline (e.g., skin discoloration, lesions near the nares, fat loss, increased cyamid loads) is classified as a serious injury (SI) and will result in a SI value set at 1 (Henry *et al*. 2016).

interactions with hook and line gear are possible, there is a low probability that an interaction will result in serious injury or mortality to any large whale species.

7.6.2.2 Bottom Trawl Gear

With the exception of minke whales, there have been no observed interactions with large whales and bottom trawl gear. To date, bottom trawl interactions with minke whales have only been observed in the MMPA LOF Category II Northeast bottom trawl fisheries. From the period of 2008-2012, the estimated annual mortality attributed to this fishery was 7.8 minke whales for 2008, and zero minke whales from 2009-2012; no serious injuries were reported during this time (Waring *et al*. 2015). Based on this information, from 2008-2012, the estimated annual average minke whale mortality and serious injury attributed to the northeast bottom trawl fishery was 1.6 (CV=0.69) whales (Waring *et al*. 2015). Lyssikatos (2015) estimated that from 2008-2013, mean annual serious injuries and mortalities from the northeast bottom trawl fishery were 1.40 (CV=0.58) minke whales. Based on above information, bottom trawl gear is likely to pose a low interaction risk to any large whale species. Should an interaction occur, serious injury or mortality to any large whale is possible; however, relative to other gear types discussed below (i.e., fixed gear (pot/trap)), bottom trawl gear represents a low source serious injury or mortality to any large whale.

7.6.2.3 Pot/Trap Gear

The greatest entanglement risk to large whales is posed by fixed fishing gear (e.g., sink gillnet and trap/pot gear) comprised of lines (vertical or ground) that rise into the water column. Any line can become entangled in the mouth (baleen), flippers, and/or tail of the whale when the animal is transiting or foraging through the water column (Johnson *et al*. 2005; NMFS 2014; Kenney and Hartley 2001; Hartley *et al*. 2003; Whittingham *et al*. 2005a,b). For instance, in a study of right and humpback whale entanglements, Johnson *et al*. (2005) attributed: (1) 89% of entanglement cases, where gear could be identified, to fixed gear consisting of pot and gillnets and (2) entanglement of one or more body parts of large whales (e.g., mouth and/or tail regions) to four different types of line associated with fixed gear (the buoy line, groundline, floatline, and surface system lines).[4] Although available data (e.g., Johnson *et al*. (2005), Waring *et al*. (2016); Henry *et al*. (2016))provides insight into large whale entanglement risks with fixed fishing gear, determining which part of fixed gear creates the most entanglement risk for large whales is difficult (Johnson *et al.* 2005). The difficulties arise from uncertainties surrounding the nature of the entanglement event, as well as unknown biases associated with reporting effort and the lack of information about the types and amounts of gear being used (Johnson *et al.* 2005). As a result, any type or part of fixed gear is considered to create an entanglement risk to large whales and should be considered potentially dangerous to large whale species (Johnson *et al.* 2005).

4 Buoy line connects the gear at the bottom to the surface system. Groundline in trap/pot gear connects traps/pots to each other to form trawls; in gillnet gear, groundline connects a gillnet, or gillnet bridle to an anchor or buoy line. Floatline is the portion of gillnet gear from which the mesh portion of the net is hung. The surface system includes buoys and high-flyers, as well as the lines that connect these components to the buoy line.

Table 38 summarizes confirmed human-caused injury and mortality to humpback, fin, sei, minke, and North Atlantic right whales along the Gulf of Mexico Coast, U.S. East Coast, and Atlantic Canadian Provinces from 2010 to 2014 (Henry *et al.* 2016); the data provided in Table Z5 is specific to confirmed injury or mortality to whales from entanglement in fishing gear. As many entanglement events go unobserved, and because the gear type, fishery, and/or country of origin for reported entanglement events are often not traceable, it is important to recognize that the information presented likely underestimates the rate of large whale serious injury and mortality due to entanglement. Further studies looking at scar rates for right whales and humpbacks suggests that entanglements may be occurring more frequently than the observed incidences indicate (NMFS 2014; Robbins 2009; Knowlton *et al.* 2012).

Table 38. Summary of confirmed human-caused injury or mortality to fin, minke, humpback, sei, and North Atlantic right whales from 2010-2014 due to entanglement in fishing gear.[1]

Species	Total Confirmed Entanglement: Serious Injury[2]	Total Confirmed Entanglement: Non-Serious Injury	Total Confirmed Entanglement: Mortality	Entanglement Events: Total Average Annual Injury and Mortality Rate (US waters/Canadian waters/unassigned waters)
North Atlantic Right Whale	16	31	8	4.65 (0.4/0/4.25)
Humpback Whale	30	53	8	6.85 (1.55/0/5.3)
Fin Whale	6	1	4	1.8 (0.2/0.8/0.8)
Sei Whale	0	0	0	0
Minke Whale	20	11	16	6.4 (1.7/2.45/2.25)

Notes:

[1]Information presented is based on confirmed human-caused injury and mortality events along the Gulf of Mexico Coast, US East Coast, and Atlantic Canadian Provinces; it is not specific to US waters only.

[2] NMFS defines a serious injury as an injury that is more likely than not to result in mortality (for additional details see: http://www.nmfs.noaa.gov/pr/pdfs/serious_injury_procedure.pdf)

***Source*:** Henry *et al.* 2016

Pursuant to the MMPA, NMFS publishes a LOF annually, classifying U.S. commercial fisheries into one of three categories based on the relative frequency of incidental serious injurious and mortalities of marine mammals in each fishery (i.e., Category I=frequent; Category II=occasional; Category III=remote likelihood or no known interactions). Large whales, in particular, humpback, fin, minke, and North Atlantic right whales, are known to interact with Category I and II fisheries in the (Northwest) Atlantic Ocean. In addition, as provided in Table

38, humpback, fin, and North Atlantic right whales are considered strategic stocks under the MMPA. Section 118(f)(1) of the MMPA requires the preparation and implementation of a Take Reduction Plan (TRP) for any strategic marine mammal stock that interacts with Category I or II fisheries. In response to its obligations under the MMPA, in 1996, NMFS established the Atlantic Large Whale Take Reduction Team (ALWTRT) to develop a plan (Atlantic Large Whale Take Reduction Plan (ALWTRP or Plan)) to reduce serious injury to, or mortality of large whales, specifically, humpback, fin, and North Atlantic right whales, due to incidental entanglement in U.S. commercial fishing gear.[5] In 1997, the ALWTRP was implemented; however, since 1997, the Plan has been modified; recent adjustments include the Sinking Groundline Rule and Vertical Line Rules (72 FR 57104, October 5, 2007; 79 FR 36586, June 27, 2014; 79 FR 73848, December 12, 2014; 80 FR 14345, March 19, 2015; 80 FR 30367, May 28, 2015).

The TRP consists of regulatory (e.g., universal gear requirements, modifications, and requirements; area-and season- specific gear modification requirements and restrictions; time/area closures) and non-regulatory measures (e.g., gear research and development, disentanglement, education and outreach) that, in combination, seek to assist in the recovery of North Atlantic right, humpback, and fin whales by addressing and mitigating the risk of entanglement in gear employed by commercial fisheries, specifically trap/pot and gillnet fisheries (http://www.greateratlantic.fisheries.noaa.gov/Protected/whaletrp/; 73 FR 51228; 79 FR 36586; 79 FR 73848; 80 FR 14345; 80 FR 30367). The TRP recognizes trap/pot and gillnet Management Areas in Northeast, Mid-Atlantic, and Southeast regions of the U.S, and identifies gear modification requirements and restrictions for Category I and II gillnet and trap/pot fisheries in these regions; these Category I and II fisheries must comply with all regulations of the Plan.[6] For further details on the ALWTRP please see:
http://www.greateratlantic.fisheries.noaa.gov/Protected/whaletrp/

7.6.3 Small Cetacean and Pinnipeds

7.6.3.1 Hook and Line and Pot/Trap Gear

Over the past several years, observer coverage has been limited for fisheries prosecuted with hook and line or trap/pot gear. In the absence of extensive observer data for these fisheries, stranding data provides the next best source of information on species interactions with hook and line or trap/pot gear. It is important to note, however, stranding data underestimates the extent of human-related mortality and serious injury because not all of the marine mammals that die or are seriously injured in human interactions are discovered, reported, or show signs of entanglement. Additionally, if gear is present, it is often difficult to definitively attribute the animal's death to the gear interaction, or if pieces of gear are absent, attribute the death or serious injury to a specific fishery or fishing gear type. As a result, the conclusions below should

5 The measures identified in the ALWTRP are also beneficial to the survival of the minke whale, which are also known to be incidentally taken in commercial fishing gear.

6 The fisheries currently regulated under the ALWTRP include: Northeast/Mid-Atlantic American lobster trap/pot; Atlantic blue crab trap/pot; Atlantic mixed species trap/pot; Northeast sink gillnet; Northeast anchored float gillnet; Northeast drift gillnet; Mid-Atlantic gillnet; Southeastern U.S. Atlantic shark gillnet; and Southeast Atlantic gillnet (NMFS 2014c).

be taken with these considerations in mind, and with an understanding that interactions may occur more frequently than what we are able to detect at this time.

Table 39 provides a list of small cetacean and pinniped species that may be affected by the tautog fishery. Of these species, only several bottlenose dolphin stocks have been identified as species at risk of becoming seriously injured or killed by hook and line or trap/pot gear. For each dolphin stock identified, stranding data provides the best source of information on species interaction history with pot/trap and hook and line gear types. Specifically, based on stranding data from 2007-2013, estimated mean annual mortality for each stock due to interactions with trap/pot gear was approximately one animal;, interactions with hook and line gear also caused approximately one annual mortality for each stock (Waring *et al*. 2014; Waring *et al*. 2016).[7] Based on this and the best available information, hook and line or trap/pot gear is not expected to pose an interaction risk to pinniped species. Interaction risks to small cetaceans (specifically bottlenose dolphins) are expected to be low. Should an interaction with a small cetacean occur, serious injury or mortality to the animal is possible; however, relative to other gear types discussed below (i.e., trawl or gillnet gear), hook and line or trap/pot gear represents a low source serious injury or mortality to any small cetacean.

7.6.3.2 Bottom Trawl Gear

Small cetaceans and pinnipeds are vulnerable to interactions with bottom trawl gear. Species that have been observed incidentally injured and/or killed by MMPA LOF Category II (occasional interactions) Northeast bottom or Mid-Atlantic trawl fisheries are provided in Table 39 (Waring *et al*. 2014; Waring *et al*. 2015; Waring *et al*. 2016; 82 FR 3655 (January 12, 2017)). Of the species provided, short-beaked common dolphins and Atlantic white-sided dolphins are the most frequently observed bycaught marine mammal species in Northeast bottom trawl gear, followed by gray seals, long-finned pilot whales, and risso's dolphins (Lyssikatos 2015). In the Mid-Atlantic, the most frequently observed bycaught marine mammal species in Mid-Atlantic bottom trawl gear was common dolphins, followed by Risso's dolphins, gray seals, offshore bottlenose dolphins, and harbor seals (Lyssikatos 2015).

7 Stranding data provided in Waring *et al*. (2015) was not considered in estimating mean annual mortality as not all bottlenose dolphin stocks are addressed in this stock assessment report. As all bottlenose dolphin stocks are considered in Waring *et al.* (2014) and Waring *et al*. (2016), these stock assessment reports were used to estimate mean annual mortality. Estimates of mean annual mortality were calculated based on the total number of animals that stranded between 2007-2013, and that were determined to have incurred serious injuries or mortality as result of interacting with hook and line or trap/pot gear. Please note, for bottlenose dolphin stocks, Waring *et al*. (2014) and Waring *et al*. (2016) provides two categories for trap/pot gear: (Atlantic Blue) Crab Pot, and Other Pot gear. We combined the two to get an overall number of interactions associated with trap/pot gear in general. In addition, any animals released alive with no serious injuries were not included in the estimate. Also, if maximum or minimum number of animals stranded were provided, to be conservative, we considered the maximum estimated number in calculating our mean annual estimate of mortality.

Table 39. Small cetacean and pinniped species observed seriously injured and/or killed by Category II bottom trawl fisheries in the affected environment of the tautog fishery.

Fishery	Category	Species Observed or reported Injured/Killed
Northeast Bottom Trawl	II	Harp seal
		Harbor seal
		Gray seal
		Long-finned pilot whales
		Short-beaked common dolphin
		White-sided dolphin
		Harbor porpoise
		Bottlenose dolphin (offshore)
		Risso's dolphin
Mid-Atlantic Bottom Trawl	II	White-sided dolphin
		Pilot whales (spp)
		Short-beaked common dolphin
		Risso's dolphin
		Bottlenose dolphin (offshore)
		Gray seal
		Harbor seal
Sources: Waring *et al*. 2016; MMPA LOF 82 FR 3655 (January 12, 2017).		

7.6.4 Sea Turtles

7.6.4.1 Hook and Line Gear

ESA-listed species of sea turtles are known to interact with hook and line gear and are more commonly reported in nearshore, southern waters (Sea Turtle Disentanglement Network; NMFS 2013). Hook and line gear can cause injury and mortality to sea turtles, and therefore, can pose a risk to these species. However, the extent to which these interactions impact sea turtle populations is still under investigation and, therefore, no conclusions can currently be made on the impact of hook and line gear on the continued survival of sea turtle populations.

7.6.4.2 Bottom Trawl Gear

Sea turtle interactions bottom trawl gear have been observed in the Gulf of Maine, Georges Bank, and the Mid-Atlantic; however, most of the observed interactions have occurred in the Mid-Atlantic (see Murray 2011; Murray 2013; Murray 2015; Warden 2011a, b). As few sea turtle interactions have been observed in the Gulf of Maine and Georges Bank regions of the Northwest Atlantic, there is insufficient data available to conduct a robust model-based analysis

on sea turtle interactions with bottom trawl gear in these regions or produce a bycatch estimate for these regions. As a result, the bycatch estimates and discussion below are based on observed sea turtle interactions bottom trawl gear in the Mid-Atlantic.

Bottom trawl gear poses an injury and mortality risk to sea turtles, specifically due to forced submergence (Sasso and Epperly 2006). Green, Kemp's ridley, leatherback, loggerhead, and unidentified sea turtles have been documented interacting (e.g.., bycaught) with bottom trawl gear. However, estimates are available only for loggerhead sea turtles. Warden (2011a,b) estimated that from 2005-2008, the average annual loggerhead interactions in bottom trawl gear in the Mid-Atlantic8 was 292 (CV=0.13, 95% CI=221-369), with an additional 61 loggerheads (CV=0.17, 95% CI=41-83) interacting with trawls, but released through a Turtle Excluder Device.[9] The 292 average annual observable loggerhead interactions equates to approximately 44 adult equivalents (Warden 2011a,b). Most recently, Murray (2015) estimated that from 2009-2013, the total average annual loggerhead interactions in bottom trawl gear in the Mid-Atlantic10 was 231 (CV=0.13, 95% CI=182-298); this equates to approximately 33 adult equivalents (Murray 2015b). Bycatch estimates provided in Warden (2011a) and Murray (2015) are a decrease from the average annual loggerhead bycatch in bottom otter trawls during 1996-2004, which Murray (2008) estimated at 616 sea turtles (CV=0.23, 95% CI over the nine-year period: 367-890). This decrease is likely due to decreased fishing effort in high-interaction areas (Warden 2011a, b).

7.6.4.3 Pot/Trap Gear

Leatherback, loggerhead, green, and Kemp's ridley sea turtles are known to interact with trap/pot gear, with interactions primarily associated with entanglement in vertical lines, although sea turtles can also become entangled in groundline or surface systems. Records of stranded or entangled sea turtles indicate that fishing gear can wrap around the neck, flipper, or body of the sea turtle and severely restrict swimming or feeding (Balazs 1985, STDN 2016). As a result, sea turtles can incur injuries and in some cases, mortality immediately or at a later time.

NMFS Northeast Region Sea Turtle Disentanglement Network's (STDN) database, a component of the Sea Turtle Stranding and Salvage Network, provides the most complete dataset of sea entanglements. Based on information provided in this database, a total of 333 sea turtle entanglements in vertical line gear were reported to the STDN and NMFS GARFO between 2002 and 2016 (STDN 2016).[11] Of the 333 reports, 316 were classified as probable or confirmed vertical line gear entanglement with a high confidence rating. Out of the 316 confirmed and

8 Warden (2011a) defined the Mid-Atlantic as south of Cape Cod, Massachusetts, to approximately the North Carolina/South Carolina border.

9 Turtle Excluder Devices (TEDs) allow sea turtles to escape the trawl net, reducing injury and mortality resulting from capture in the net. TEDregulations can be found at: 50 CFR 223.206, 68 FR 8456, and 50 CFR 223.206.

10 Murray 2015 defined the Mid-Atlantic as the boundaries of the Mid-Atlantic Ecological Production; roughly waters west of 71°W to the North Carolina/South Carolina border)

11 Data for 2016 was only available through September; data through the remainder of 2016 is still being processed.

probable entanglement events, there were 147 cases in which the gear type associated with the entanglement could be assigned to a specific fishery. The majority of interactions involved leatherback sea turtles (130) followed by loggerhead (16), and green (1) sea turtles. Of the 130 leatherbacks, 68.5 % of the vertical line interactions involved gear associated with the lobster fishery (vertical line), 17.7 % the whelk fishery, 7.7% the seabass fishery, 2.3 % the crab fishery, 1.5 % the conch fishery, 1.5% research , and 0.77 % whelk and lobster fishery (both trap/pots present). Of the 16 loggerheads, 56.3% involved interactions with vertical line associated with the whelk fishery and 43.8% the crab fishery. The one green sea turtle case involved an interaction with vertical line associated with the whelk fishery.

7.6.5 Atlantic Sturgeon

7.6.5.1 Hook and Line Gear

ESA-listed species of Atlantic sturgeon are known to interact with hook and line gear, particularly in nearshore waters from the Gulf Maine to Southern New England (NMFS 2013). Injury and mortality to Atlantic sturgeon can be incurred by hook and line gear interactions, and therefore, can pose a risk to these species. However, the extent to which these interactions are impacting Atlantic sturgeon DPSs is still under investigation and therefore, no conclusions can currently be made on the impact of hook and line gear on the continued survival of Atlantic sturgeon DPSs (NMFS 2013; NMFS 2011b).

7.6.5.2 Bottom Trawl Gear

Atlantic sturgeon interactions (i.e., bycatch) with bottom trawl gear have been observed since 1989; these interactions have the potential to result in the injury or mortality of Atlantic sturgeon (NMFS NEFSC FSB 2015, 2016). Three documents, covering three time periods, that use data collected by the Northeast Fisheries Observer Program to describe bycatch of Atlantic sturgeon in gillnet and bottom trawl gear: Stein et al. (2004b) for 1989-2000; ASMFC (2007) for 2001-2006; and Miller and Shepard (2011) for 2006-2010; none of these documents provide estimates of Atlantic sturgeon bycatch by Distinct Population Segment. Miller and Shepard (2011), the most of the three documents, analyzed fishery observer data and VTR data in order to estimate the average annual number of Atlantic sturgeon interactions in gillnet and otter trawl in the Northeast Atlantic that occurred from 2006 to 2010. This timeframe included the most recent, complete data and as a result, Miller and Shepard (2011) is considered to represent the most accurate predictor of annual Atlantic sturgeon interactions in the Northeast gillnet and bottom trawl fisheries (NMFS 2013).

Based on the findings of Miller and Shepard (2011), NMFS (2013) estimated that the annual bycatch of Atlantic sturgeon in bottom otter trawl gear to be 1,342 sturgeon. Miller and Shepard (2011) observed Atlantic sturgeon interactions in trawl gear with small (< 5.5 inches) and large (≥ 5.5 inches) mesh sizes. Based on NEFOP observed sturgeon mortalities,Miller and Shepard (2011) concluded that, gillnet gear, in general, posed a greater risk of mortality to Atlantic sturgeon than did trawl gear. Estimated mortality rates in gillnet gear were 20.0%, while those in otter trawl gear were 5.0% (Miller and Shepard 2011; NMFS 2013). Similar conclusions were reached in Stein *et al*. (2004b) and ASMFC (2007) reports; after review of

observer data from 1989-2000 and 2001-2006, both studies concluded that observed mortality is much higher in gillnet gear than in trawl gear. However, an important consideration to these findings is that observed mortality is considered a minimum of what actually occurs and therefore, the conclusions reached by Stein *et al*. (2004b), ASMFC (2007), and Miller and Shepard (2011) are not reflective of the total mortality associated with either gear type. To date, total Atlantic sturgeon mortality associated with gillnet or trawl gear remains uncertain.

7.6.5.3 Pot/Trap Gear

To date, there have been no observed/documented interactions with Atlantic sturgeon and pot/trap gear (NMFS NEFSC FSB 2015, 2016). Based on this information, pot/trap gear is not expected to pose an interaction risk to any Atlantic sturgeon and therefore, is not expected to be a source of injury or mortality to this species.

7.6.6 Atlantic Salmon

7.6.6.1 Pot/Trap and Hook and Line Gear

To date, there have been no observed/documented interactions with Atlantic salmon and hook and line or pot/trap gear (NMFS NEFSC FSB 2015, 2016). Based on this information, these gear types are not expected to pose an interaction risk to any Atlantic salmon and therefore, are not expected to be source of injury or mortality to this species.

7.6.6.2 Bottom Trawl Gear

Atlantic salmon interactions (i.e., bycatch) with bottom trawl gear have been observed since 1989; in many instances, these interactions have resulted in the injury and mortality of Atlantic salmon (NMFS NEFSC FSB 2015, 2016). According to the Biological Opinion issued by NMFS Greater Atlantic Regional Fisheries Office on December 16, 2013, NMFS Northeast Fisheries Science Center's (NEFSC) Northeast Fisheries Observer and At-Sea Monitoring Programs documented a total of 15 individual salmon incidentally caught on more than 60,000 observed commercial fishing trips from 1989 through August 2013 (NMFS 2013; Kocik *et al*. 2014). Of these fifteen Atlantic salmon, four were observed bycaught in bottom otter trawl gear (Kocik (NEFSC), pers. comm (February 11, 2013) in NMFS 2013). Since 2013, no additional Atlantic salmon have been observed in bottom trawl gear (NMFS NEFSC FSB 2015, 2016). Based on the above information, bottom trawl interactions with Atlantic salmon are likely rare (NMFS 2013; Kocik *et al*. 2014).

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Appendix 1.

Millstone Entrainment Sampling

Samples have been taken since 1976 at the Millstone Nuclear Power Plant in Waterford, Connecticut. Sampling frequency varies seasonally; over the period in which tautog eggs and larvae are collected, samples are taken day and night three times (May) or twice (June through August) a week. A conical plankton net (1.0 x 3.6 m, 335 microns mesh size) collects samples at outflow sites at the Millstone Nuclear Power Plant. Readings from four flowmeters mounted in the mouth of the net account for variations in horizontal and vertical flow. Sample volume is typically about 200 m^3. All ichthyoplankton collections are immediately fixed in 10% formalin.

Samples are split repeatedly in the laboratory using a NOAA Bourne splitter. Successive splits are sorted and counted until at least 50 larvae (and 50 eggs for samples processed for eggs) are found, or until one half of the sample volume was processed. Tautog eggs are enumerated in all samples collected from April through October. Tautog and Cunner have eggs of similar appearance and were distinguished on the basis of a weekly bimodal distribution of egg diameters (Williams 1967).

Means of annual cumulative sum of egg entrainment for the years 2013 – 2015 show that 63% of the eggs are captured between weeks 18 and 30 (May 1 – July 31), 71% are captured between weeks 18 and 32 (May 1 – mid-August), and 78% are captured between weeks 18 and 34 (Figure 1). As Tautog eggs hatch between 42-48 hours after spawning (Kuntz and Radcliffe, 1918), the presence of eggs is a good indicator of spawning activity.

Other resources

Other studies of Tautog in southern New England indicate that the majority of spawning takes place between May and end of July, with continued spawning through the end of August (LaPlante and Schultz, 2007; Berrien and Sibunka, 1999).

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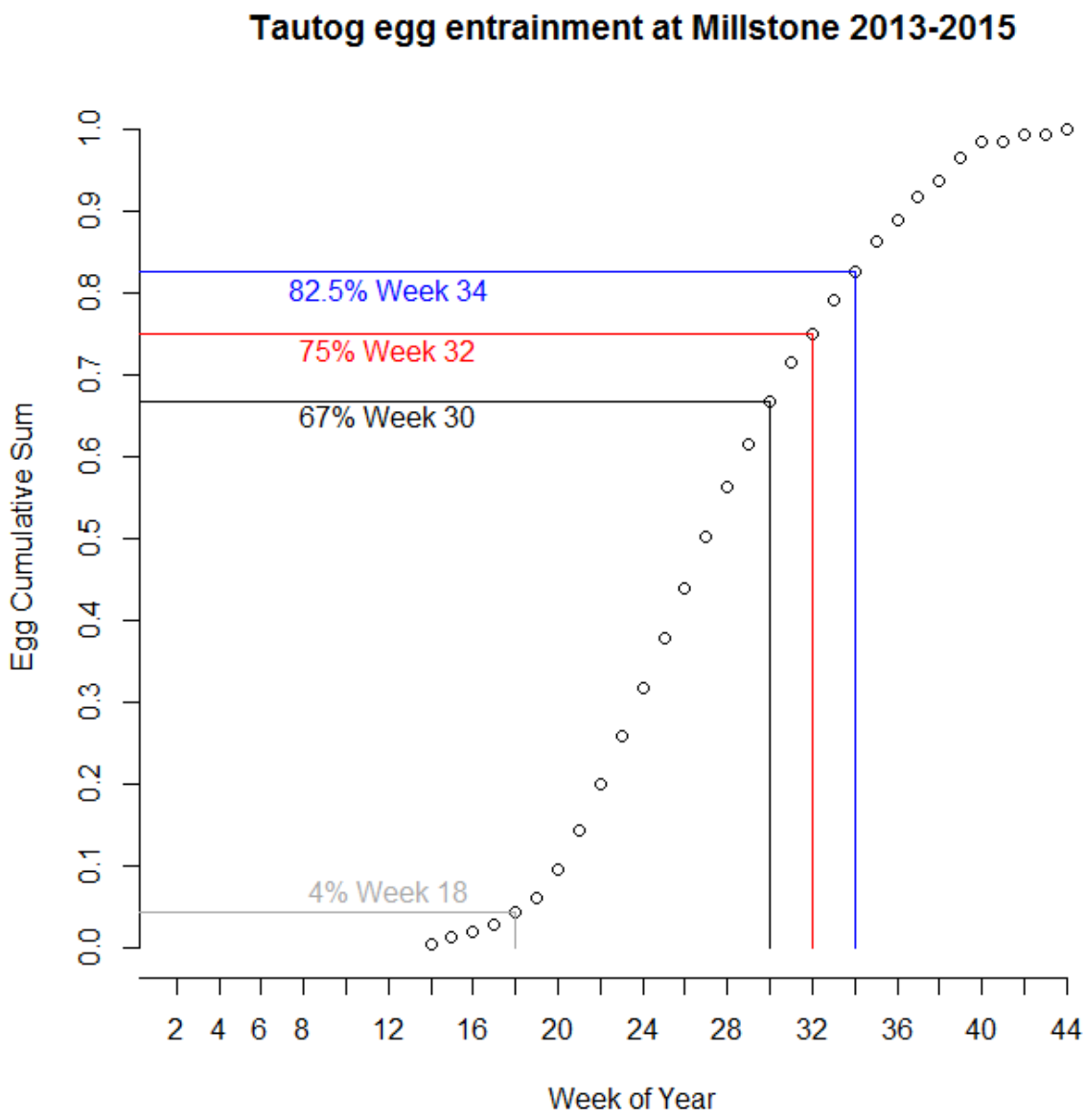

Figure 1: Mean annual cumulative sum of Tautog egg entrainment at the Dominion Millstone Power Station (Waterford, CT) for the years 2013-2015

ATLANTIC STATES MARINE FISHERIES COMMISSION

TAUTOG DRAFT AMENDMENT 1

PUBLIC HEARING MEETING SUMMARIES

Bourne, Massachusetts l June 21, 2017
11 Total Participants

Meeting Staff (3): Ashton Harp (ASMFC), Dan McKiernan, Raymond Kane, Tiffany Vidal

Meeting participants (8): Drew Kolek, John Amaral, Nathan Matthews, Chris Corinos, Mike Pierdinock, Pat Moran, 2 unidentified people

SECTION 2: GOALS AND OBJECTIVES

Goals, Objectives and Biological Reference Points: No preference

F Mortality Target

General consensus in favor of *Option B3*, which requires the Board to initiate a management document within two years of an overfishing stock status

Probability of Achieving F Target

One participant in favor of *Option B. 50% Probability of Achieving F Target.*

F Reduction Schedule

General consensus in favor of *Option B. Three years.*

Stock Rebuilding Schedule

General consensus in favor of *Option B*, *A rebuilding schedule can be built via an addendum.*

SECTION 4: MANAGEMENT PROGRAM

Regional Management

General consensus in favor of regional management.

MA-RI Recreational Measures

After reviewing the proposed regional measures, the participants suggested additional revisions:

- One participant noted that tautog is generally caught in the spring, specifically at the end of April and early May (before scup show up); and in the fall during October and

November. If the fishery is closed in the summer months (June – August) then it won't have to much of an impact.

- Another participant said the month of September was of importance.
- Other fisheries are of importance in the summer, although if a tautog is hooked then fishers would like to keep at least one.
- The group suggested the following regional measures be considered:

Suggested Regional Recreational Measures

		Size	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
	MA	16"	**0**			**3**		**0 or 1**				**6**		
	RI		**0**			**3**		**0 or 1**				**6**		

Commercial Harvest Tagging Program

Participants are not opposed to the tags, but had questions about implementation. It was noted that states will address implementation details if the program is approved.

The group was not sure that the tag applicator could withstand salt water.

One participant said the live market for tautog is small. During the months that tautog are landed more frequently it becomes hard to sell them because the market is flooded. Fishers generally have to hold onto the fish for a bit of time to sell at a higher price (i.e. sell at the beginning of the year).

Tag Application

The preference was for *Option B. Dealer Application*. Harvesters did not want to be burdened with picking up the tags, learning how to tag a fish and/or taking the time to apply the tag on the water. They felt it was the responsibility of the dealer. There was also concern that the tags would come off because the fish are in close quarters (i.e., in a live well or net) after being caught.

Narragansett, Rhode Island l June 22, 2017
12 Total Participants

Meeting Staff (3): Ashton Harp (ASMFC), Jason McNamee, Nicole Aires

Meeting participants (9): David Monti, Andy Dangelo, Russell Benn, Robert Smith, Pat Heaney, Frank Blunt, John Rainone, Charlie Donilon, Aaron Scripps

SECTION 2: GOALS AND OBJECTIVES

Goals

No objections to *Option B, revised goal statement*.

Objectives

One participant would like to see an objective that encourages electronic reporting. The for-hire fleet in RI is required to report via e-trips and the other states should have the same requirements. It is a more accurate source of recreational harvest than MRIP.

In addition, the participant would like to emphasize that compatible regulations should be encouraged, not required.

Biological Reference Points

No objections to *Option B.*

F Mortality Target

One participant is in favor of *Option A, status quo*. No comment on Option B.

Probability of Achieving F Target

General consensus in favor of *Option B.*

F Reduction Schedule

One participant in favor of *Option B, three years*. Two participants wanted an option that was less than 3 years; they want overfishing to be stopped immediately because the species is slow growing.

Stock Rebuilding Schedule

One participant questioned why Option C has a 10 year timeframe given the life history of the species. If a rebuilding schedule is initiated then they would like species specific research to justify the timeframe.

SECTION 4: MANAGEMENT PROGRAM

Regional Management

General consensus in favor of regional management as shown (i.e., the four region scenario).

MA-RI Recreational Measures

General consensus for *Option A, status quo*. Participants did not see the need to regionalize management measures with MA if the stock is in good health. The states have had different regulations for years and there have never been any complaints.

Commercial Quota

Two participants in favor of *Option B.*

Commercial Harvest Tagging Program

General consensus in favor of *Option B;* a tagging program worked for striped bass and it will likely help with tautog.

Tag Application

Three participants are in favor of *Option A, harvester tagging*. They do not think it will be a burden for fishermen because tautog is not a high volume fishery. They would prefer the wording to say the tag must be attached "prior to offloading".

General Comments

There was concern that the LIS restrictions will result in increased effort in RI. There was discussion of requiring a tautog permit or endorsement to fish for tautog in RI waters. However, current RI regulations only allow for commercial fishermen to have permits, if it were to be done recreationally then it would require a change in regulations which could take years.

There was support for fishermen caught harvesting tautog illegally to receive consequences that would deter future illegal behavior. If a fishermen is caught twice then they should lose their license to fish for tautog permanently.

One participant was in favor of requesting a federal permit to fish for tautog in federal waters. The request would not ask for Council involvement, just the creation of a federal permit. This could greatly decrease illegal fishing offshore.

Old Lyme, Connecticut l June 26, 2017
35 Total Participants

Meeting Staff (7): Ashton Harp (ASMFC), Mark Alexander, Colleen Giannini, Greg Wojcik, Justin Davis, Peter Aarrestad, Robert LaFrance

Meeting participants (28): Robert Granfield (Granfield Fisheries), Peter Consiglio (Poppa-C), T.J. Karbowski (party charter fisherman), Eric Schultz (UCONN), Jacob Kasper (UCONN), Preston Glass (party charter fisherman), Lauren Griffith (party charter fisherman), Mike Piri (party charter fisherman), Jessie Roach (party charter fisherman), James Schneider (party charter fisherman), Chris Kepler (party charter fisherman), Chris Parizzi (party charter fisherman), Sid Holbook, Michael Gambardella (Gambardella Wholesale Fish Inc.), Greg Dubrule (party charter fisherman), Karen Westerbay, James Schnider, Marc Bay, Dave Nolan, Ted Nozizis, Kevin Mace

SECTION 2: GOALS AND OBJECTIVES

Goals, Objectives, Biological Ref Points, F Target, F Probability, F Reduction Schedule, Stock Rebuilding Schedule

Participants did not want to comment on each issue, instead general comments were taken. They felt going issue by issue was too confusing and many had individual comments already prepared they wanted to read. There were no comments on issues in Section 2.

SECTION 4: MANAGEMENT PROGRAM

Regional Management

Multiple people are not in favor of regional management because they question the stock assessment data.

One participant was in favor of regional management.

There was discussion about what regional management would look like, specifically if there would be cooperative research among the states within a region. A manager responded that there are no additional funds for new surveys. The existing surveys would continue.

LIS Recreational Measures

General consensus not to change the management measures (see reasoning under general comments). The 39% reductions in 2012 were severe enough and the fishermen believe there is an uptick in abundance. They are seeing bigger fish than they ever saw before and there is a strong belief that the fishery is coming back. Any further reductions would put many fishermen and supporting companies (bait and tackle stores, local delis, etc.) out of business.

One or two fish possession limit is equivalent to a moratorium. Therefore, the 4 fish possession limit should remain.

One participant said available fishing days are needed in the spring, summer and fall.

Spearfishing should be considered when developing new regulations. It operates differently than the above water fishery. A small slot limit is not feasible when spear fishing.

There is not a very big fishery for tautog in April. The tautog recreational fishery has grown by a lot over the years. To maintain a viable fishery the fall possession limit of 4 fish cannot be changed.

LIS Commercial Regulations

Multiple participants were not in favor of a commercial quota. It would not be beneficial for fishermen or the resource.

One participant is concerned a commercial quota could lead to the "disastrous situation" that has unfolded with fluke. Fishers cross into other state water to fish, therefore if a quota was required then it should be a regional quota.

General Comments

A petition was given at the hearing; it is provided under written comments.

Multiple participants said any fishermen should question the data and science supporting a 47% reduction. The MRIP PSE for tautog is far too high to be used in a stock assessment. There should have been more vetting of the proposed options and science prior to public comment. As a result, the Board should continue to use status quo management measures.

Multiple participants said there should have been more thought and time given to the economic impact. The proposed LIS reductions are too severe to not have undertaken an economic analysis. Said economic impact of this amendment to his business would be about 35 trips or 25% of his income

Multiple participants are in favor of requiring electronic reporting for all charter boats. The data would then be vetted by a third party and it would be more accurate than MRIP estimates.

- Seventeen fishermen are currently reporting electronically through SAFIS (50% of the Party Charter Association membership). He calculated the economic impact of this amendment and found he would lose 15-20 trips in the fall, equating to a loss of $10-$15k, not including secondary impact on the marina where he buys fuel, bait and tackle shop he uses or restaurants.
- Another party charter license holder pointed out the flaws with MRIP. Stated that for the party charter industry to land 57k fish in 2014 would mean 2,300 six pack trips that maxed out on the creel.

One participant asked why Connecticut created an open access fishing permit in 2016 if the stock was declining and questioned if the permit would remain open access. In response,

managers said the process to create the permit started before the amendment was initiated and the permit is not going away.

One participant voiced concern that further fishery reductions will vastly reduce fishing opportunities for young people.

Tautog fishing is best from October 20 through Thanksgiving weekend; that is a very short window to fish (and it is further reduced by bad weather days). Given the season is so short it is not possible for fishermen to put as big of dent in the fishery as the stock assessment claims.

One participant requests a more active artificial reef program for the region because the wrecks that were offshore are gone after Hurricane Sandy.

Given this is a slow growing fishery, the stock assessments should be spaced out to allow more time for regulations to take effect. A stock assessment 3 years after a major reduction is too soon.

One participant suggested recreational volunteer to take part in gather data for the fishery via logbooks.

One participant displayed pictures of a 7” female laying eggs and felt smaller fish generated better eggs. Felt all outreach material should state to never release a fish using a rag, as it removes the slime layer, making them more susceptible to disease. They also felt MRIP staff need to better encourage accurate reporting by those they interview.

East Setauket, New York l June 20, 2017
80 Total Participants

Meeting Staff (3): Ashton Harp (ASMFC), James Gillmore, John Maniscalco, Emerson Hasbrouck

Meeting participants (80 counted; 69 signed in): See attached signature list.

SECTION 2: GOALS AND OBJECTIVES

There were no comments on the issues/options within Section 2.

SECTION 4: MANAGEMENT PROGRAM

Regional Management

All participants, except one person, are strongly opposed to regional management. Comments included:

- Did not want to separate the sound versus south shore; it would be pitting the locations against each other
- Did not believe in the data used to separate the regions or population estimates.
- Regional management resulted in unfair, crippling management measures for New York fisheries.

LIS Boundary

Participants questioned the economic impact the boundary line would create, especially for charter boat fishermen. They did not believe it could be effectively enforced.

Recreational Management Measures

General comments

The participants are strongly not in favor of any alternatives that would change the current New York management measures, with one exception. The participants are in favor of re-instating a spring fishery.

The proposal to reduce the possession limit to 1 fish is equivalent to a moratorium. Charter boat fishermen commented that nobody will come on the boat to only keep 1 fish.

Multiple participants commented on the current state of fisheries management. The fishermen have too many restrictions on other fisheries (e.g., striped bass, blackfish, fluke etc.) They can't keep taking reductions and remain in business. It seems like the state and federal agencies want to push the small boats out of business so they can heavily regulate the large boats.

A few fishermen voiced support for spawning closures for the recreational and commercial fishery.

One participant noted that they started using larger hooks that are designed to catch large (16" +) tautog.

One participant said the number of pots in the water should be counted and then restricted. The pots are fishing all the time. ASMFC should lead a study to count the thousands of pots in the water.

One participant said the new food fish license has inadvertently reduced landings, those reductions were not accounted for in the proposed management measures, but they should be.

One participant said fishing is a right and they are strongly opposed to paying for a fishing license (this was not a proposed option).

Suggested revisions

Fishermen stated that they catch tautog mid-October through December 5th. Therefore, the options look like a longer season on paper, but the fish are not there for the majority of the proposed fall season. They would like to move the extra fall days, which could allow for a spring fishery. Specifically the fishermen would like ~20 fishing days in April.

Survey estimates

One participant noted that after days out of the fishery due to weather, the fall fishery is really only 20 days. As a result, there were strong concerns that the population estimates from the stock assessment were not accurate. They questioned how the fishermen could have such a large impact in a small amount of time. They recommend hook and line surveys be developed to gauge population estimates.

Multiple fishermen said there are more and more tautog each year. In 2016, tautog were everywhere. Therefore the surveys are not indicative of actual abundance and should be dismissed until NY DEC includes hook and line surveys.

The NY DEC pot surveys over the summer cannot accurately estimate abundance because there are no tautog during those months; the surveys need to be re-designed.

One participant did not believe in the morality estimates because these are very hardy fish.

One participant wants full transparency in data collection in the future, which would include professional video of all collection efforts.

Artificial Reefs

Multiple participants were in favor of funding artificial reefs to create additional tautog habitat. One participant voiced support for the Commission to seek sponsorship funding to create artificial reefs (e.g., Pepsi funding to create the Pepsi reef).

Commercial Measures

One participant said the NY law does not allow for a possession limit above 25 fish, however the options include higher possession limits. Would the law have to change?

One participant said NY law does not allow landings data to be used to create a commercial quota.

Commercial Harvest Tagging Program

General consensus in opposition to a commercial harvest tagging program.

General comments

One participant questioned why the tags would have to be applied to dead fish if the problem is the live market.

One participant questioned how the tags would reduce the black market. The restaurants would ignore the tagging law just like they ignore the minimum size limits.

Suggested alternative

Save money and reduce effort on behalf of commercial fishermen by requiring all recreational fishermen to kill tautog while in possession. The majority of participants said there is no reason to have a live tautog when fishing recreationally—the only reason would be that you want to sell the fish illegally on the black market.

Commercial fishermen should be given a decal that identifies their boat and allows them to keep live tautog.

NY ASMFC Tautog Draft Amendment 1
Public Hearing
6/20/2017 NYSDEC Marine Resources East Setauket

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NY ASMFC Tautog Draft Amendment 1
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NY ASMFC Tautog Draft Amendment 1
Public Hearing
6/20/2017 NYSDEC Marine Resources East Setauket

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JOHN German			

Toms River, New Jersey l June 27, 2017

7 Total Participants

Meeting Staff (2): Ashton Harp (ASMFC), Tom Fote, Jeff Brust, Lindy Barry

Meeting participants (3): Jack Fullmer, Paul Huertel, Ken Warcharl

SECTION 2: GOALS AND OBJECTIVES

Goals, Objectives, Biological Ref Points, F Target, F Probability, F Reduction Schedule, Stock Rebuilding Schedule

Participants did not want to comment on each issue, instead general comments were taken. There were no comments on issues in Section 2.

SECTION 4: MANAGEMENT PROGRAM

Regional Management

Two participants are in favor of regional stock assessments, however not necessarily the same management measures as New York.

LIS Boundaries

General consensus in favor of *Sub-Option B1*. They don't want the Peconic Bay to be included in the NJ-NYB (Sub-Option B2).

NJ-NYB Recreational Measures

General consensus favor status quo measures, they believe New Jersey has done a good job of creating measures that reflect the fishery needs.

In the proposed state-specific reduction and the regional measures, there was concern about losing July for a spawning closure (and/or August and September) because there is a small fishery in the summer months. They would prefer a lower bag limit from Nov 1 – 15 (prime season) rather than closing all of July, August or September. Those months are important for spear diving fishermen and they should be allowed to have at least 1 fish. One participant was also in favor of increasing the minimum size limit to 16" to keep those summer months open.

They are not in favor of a slot limit because that is only necessary if the fishery is in real trouble. A 4" slot limit is not feasible for a spear diver. They practice safe sizing meaning they fish about 3" above the minimum size; a slot limit would make this impossible.

Commercial Harvest Tagging Program

General consensus in favor of a tagging program because the illegal activity out of New York is blatant.

Tag Application

All participants are in favor of *Option A. Harvester tagging*. They would prefer the language for Option A require harvesters to apply the tag prior to landing. Option B was not seen as being effective.

General Comments

Two people are in favor of a recreational and commercial spawning closure.

There was a discussion about the management measures being proposed in the Long Island Sound. The participants do not think the data is reliable enough to move forward with such a large reduction. There is too much uncertainty in the data.

Lewes, Delaware l June 28, 2017

7 Total Participants

Meeting Staff (2): Ashton Harp (ASMFC), John Clark, Roy Miller

Meeting participants (4): Rich King, Barry Quinn, Michael Saba, Michael Stallings

SECTION 2: GOALS AND OBJECTIVES

Goals, Objectives, Biological Ref Points, F Target, F Probability, F Reduction Schedule, Stock Rebuilding Schedule

Participants did not want to comment on each issue, instead general comments were taken. There were no comments on issues in Section 2.

SECTION 4: MANAGEMENT PROGRAM

Regional Management

General consensus to move forward with regional stock assessments and regional management measures.

DELMARVA Recreational Measures

General consensus in favor of *Option D. Consistent minimum size, possession limit and seasons.*

Participants emphasized that they want Delaware measures to mirror the Maryland measures. For example if Maryland were to submit a conservation equivalency request to fish during the month of the May and it was granted then Delaware wants the same measures. Any conservation equivalency requests should first work through the regional working group.

One participant wants 1 or 2 fish during May and June (the proposed spawning closure time period). They would prefer an April/May spawning closure.

Commercial Harvest Tagging Program

General consensus in favor of a tagging program.

Tag Application

All participants are in favor of *Option A. Harvester tagging*. They would prefer the language for Option A require harvesters to apply the tag prior to landing. Option B was not seen as being effective.

General Comments

One participant is in favor of recreational and commercial spawning closures.

Given overfishing is not a problem, there was a discussion about why the stocks have declined. The abundance declines are due to a lack of habitat and food. The participants would like to see more efforts to create artificial reefs with blue mussels. As spear diving fishermen they have noticed that tautog are only at wrecks that have an abundance of blue mussels.

Berlin, Maryland l June 15, 2017
10 Total Participants

Meeting Staff (2): Ashton Harp (ASMFC), Angel Willey (MD DNR)

Meeting participants (8): Finn McCabe, Victor Bunting, John Prather, Dick Nieman, Budd Hein, Ron Smith, Monty Hawkins, Kane Bounds

SECTION 2: GOALS AND OBJECTIVES

Goals

No objection to Option B.

Objectives

No objection to *Option H* which incorporates all the revised objectives into the document.

Biological Reference Points

One participant was in favor of *Option A* because don't have time to go to a Commission meeting to make a public comment and one participant was in favor of *Option B* because they can still comment on the issue even if there is no hearing.

F Mortality Target

Five participants were in favor of *Option B*. *Managing to the Regional F Target.*

One participant was in favor of *Sub-Option B2* which requires the Board to initiate a management document within one year of an overfishing stock status and requires implementation the following year. The participant felt immediate action was the best use of time.

Three participants were in favor of *Sub-Option B3. Board Action within Two Years.* This would provide more time and flexibility for managers and the Technical Committee to develop effective management alternatives using new or revised data. They didn't want a rushed management decision, especially if the data was faulty.

Probability of Achieving F Target

Two participants were in favor of *Option A. Status quo.* They had concerns with the accuracy of MRIP estimates and think managers should not be constrained to a prescriptive probability. They wanted managers to have more flexibility when making decisions, not less.

F Reduction Schedule

Three participants were in favor of *Option C. Five years.* They prefer restrictions (if necessary) to be spread over a longer period of time to minimize disruption to businesses. A longer time period was also seen as giving more flexibility to managers.

Stock Rebuilding Schedule

Three participants were in favor of *Option B,* which would allow a regional stock rebuilding schedule to be developed via an addendum. There was a request for the rebuilding schedule to be developed regionally, which is the intent of the alternative. If an addendum is developed then it should include targets for artificial reef development, which are seen as key determinants for healthy tautog populations.

SECTION 4: MANAGEMENT PROGRAM

Regional Management

All are in favor of *Option B. Regional management.* They would like to see regional management that is fair for all states because fishermen travel throughout the region. A minimum size limit of 16 inches was seen as the most important regional management measure to obtain.

There was a discussion about the interplay between the black sea bass and tautog fisheries. Generally tautog is caught as bycatch while fishing for black sea bass. When developing tautog regulations managers should reference the black sea bass measures that are available—the seasons should overlap.

One participant noted that Delaware and Virginia each have more fishing opportunities (i.e., bays). Maryland is already more restricted due to location.

DelMarVa Recreational Measures

The participants were not in favor of any option in its entirety, especially any option that would result in a harvest reduction (Option C and D) given the region is 'not overfishing'. Option B was off the table because the minimum size would not be uniform.

There was strong support for Option D to be modified as follows (shown in Table 1):

- 16" minimum size for all states (highest priority)
- No spawning closures; a May/June closure is not viable given the current black sea bass restrictions. It also applies unnecessary harvest restrictions on the industry.
- The bag limit should be lower in the summer months, anything higher than a 2 fish bag limit would create a summer fishery where there is currently not a fishery. It would expand the fishery.

Revised version of Option D in Draft Amendment 1

		Size	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
	DE	16"	4				2					4		
	MD		4				2					4		
	VA		4				2					4		

DelMarVa Commercial Measures

No objection to *Option B.* There was concern that Virginia has a competitive advantage because they are no possession limits for the commercial fishery. The seasons when the Virginia commercial fishery is open are seen as favorable fishing months. They recommend a commercial quota or possession limits be applied.

Commercial Quota

One participant was in favor of *Option B*.

Commercial Harvest Tagging Program

There was no objection to *Option B* – at this time it is seen as the best opportunity to minimize the black market fishery. Some participants said it won't completely eliminate illegal fishing because there will always be loop holes. If possible changing the tag colors each year would prevent people from making their own tags.

Tag Application

All participants were in favor of *Option A. Harvest tagging*. They would prefer the language for Option A require harvesters to apply the tag prior to landing. Option B was not seen as being effective.

Newport News, Virginia l June 14, 2017
5 Total Participants

Meeting Staff (3): Ashton Harp (ASMFC), Joe Cimino (VMRC), Katie May Laumann (VMRC)

Meeting participants (2): David Agee, Wes Blow

SECTION 2: GOALS AND OBJECTIVES

Goals

No comment.

Objectives

One participant was in favor of *Option H* which incorporates all the revised objectives into the document.

Biological Reference Points

One participant was in favor of *Option B* which allows the Board to change the reference point via Board Action.

F Mortality Target

One participant was in favor of *Option B, Managing to the Regional F Target.* There was preference for *Sub-Option B2* which requires the Board to initiate a management document within one year of an overfishing stock status and requires implementation the following year. The participant felt immediate action was best and any further delay would only exacerbate the problem.

Probability of Achieving F Target

One participant was in favor of *Option B,* applying at least a 50% chance of achieving F Target.

F Reduction Schedule

One participant was in favor of *Option B. Three years.* Overfishing should be reduced as soon as possible. The individual commented that the fishery inside the Bay Bridge is almost dead, there is some fishing at the bridge. If catch data says that is not the case then it is not accurate.

Stock Rebuilding Schedule

One participant was in favor of *Option C,* which would allow a regional stock rebuilding schedule to be developed via an addendum and the rebuilding timeframe would be set at 10 years. There was concern that the DelMarVa region had limited data to apply towards a rebuilding schedule and/or the stock assessment.

SECTION 4: MANAGEMENT PROGRAM

Regional Management

One participant was in favor of *Option B, regional management.* There was a strong concern that the document outlined no consequences for a state/region that exceeded F Targets. Specific examples where states have exceeded targets with no consequences were discussed.

DelMarVa Recreational Measures

One participant was in favor of *Option D, regionally consistent measures* for bag, season and minimum size limit. There was a preference for all states to have regionally consistent measures, and a concern that conservation equivalency negate any regional efforts.

There was support for extending the sapwnign closure from April – June (instead of May/June). This would protect (ravenous) pre-spawing fish and spawners.

There was also support for the Board to consider different regulations for the Chesapeake Bay versus offshore tautog fisheries.

DelMarVa Commercial Measures

One participant was in favor of *Option B.*

Commercial Quota

One participant was in favor of *Option B*.

Commercial Harvest Tagging Program

Two participants were in favor of *Option B* because it is the only way to control the black market fishery. They also supported applying the tagging program to all states, even if commercial effort was minimal.

Tag Application

Two participants were in favor of *Option A, harvest tagging*. Option B was seen as a flawed, ineffective strategy.

Atlantic States Marine Fisheries Commission

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MEMORANDUM

July 11, 2017

To: Tautog Management Board

From: Law Enforcement Committee

RE: Enforcement Issues for Tautog Draft Amendment 1

The Law Enforcement Committee (LEC) of the Atlantic States Marine Fisheries Commission (ASMFC) met via conference call on June 29, 2017 to review and provide comments on proposed management measures of The ASMFC Draft Amendment 1 for Tautog. The following members were in attendance:
LEC: Chairman, Lt. Mike Eastman (NH); Maj. Rene Cloutier (ME); Asst. Director Larry Furlong (PA); Lt. Tom Gadomski (NY); Sgt. Greg Garner (SC); Maj. Rob Kersey (MD); Capt. Bob Lynn (GA); Capt. Doug Messeck (DE); Katie Moore (USCG); Maj. Pat Moran (MA); Director Kyle Overturf (CT); Capt. Jason Snellbaker (NJ)
STAFF: Ashton Harp; Mark Robson; Megan Ware

Issue 4.1 Regional Boundaries
The LEC reviewed its position on establishing a regional boundary line at the east end of Long Island Sound. The LEC first considered this issue during a March 17, 2017 teleconference call, and again during its regularly scheduled meeting on May 9, 2017. The LEC reaffirms its previous positions:

March 28, 2017 Memorandum of Teleconference Call
Defining a boundary line between areas
A proposed boundary line between the sound and the ocean would be hard to determine on the water as there are no clear buoys to reference. This would make enforcement difficult, especially if land reference points are used to define the boundary line. A boundary line over the water without clearly visible landmarks or demarcations is almost completely unenforceable. At the very least, making strong cases for violations of such a line presents numerous enforcement challenges such as verifying position data of the patrol vessel and the fishing vessel in question, and determining a vessel operator's intent to violate the boundary vs. an accident of navigation.

May 9, 2017 LEC Meeting Summary:
Tautog.*—Ashton Harp briefed the LEC on proposed management boundaries for Long Island Sound. Options 5 and 6 for defining a boundary line in eastern Long Island Sound both present enforcement challenges if the differences in regulations among the 3 associated management units are significant. Recreational and commercial fishermen regularly move back and forth from the inner sound, the ocean side of Long Island and Rhode Island waters. The LEC cautioned that selecting either line will require substantial enforcement resources to ensure compliance with the various management regulations that will be in close proximity. It was*

pointed out that using the ColRegs line in Option 6, with more visible land-points, might be preferable, although Option 5 was also acceptable. Enforceability of widely differing regulations in close proximity will be influenced by tagging requirements of commercially harvested fish.

Issue 4.4 Commercial Harvest Tagging Program

The LEC reaffirms its support for a commercial tagging program for tautog. The LEC also reaffirms its previous positions regarding the timing of tag applications. **Tagging of tautog should occur as close to the point of harvest as possible.** Dealer tagging is not supported. Members expressed concern that even tagging at the dock or prior to offloading presents significant enforcement challenges, but is at least a more acceptable option than dealer tagging. In summary, the quicker a harvested tautog is tagged, the more likely a commercial tagging program will achieve its intended results.

The Law Enforcement Committee appreciates the opportunity to provide advice and recommendations regarding the management of tautog.